HAEMOPHILUS INFLUENZAE, INVASIVE DISEASE

Clinical Features: Several clinical syndromes including meningitis, septic arthritis, epiglottitis, cellulitis, bacteremia, and pneumonia may characterize invasive infection. Symptoms of meningitis may include fever, headache, lethargy, vomiting, and stiff neck. Other symptoms depend on the part of the body affected.

Causative Agent: *Haemophilus influenzae*, a gram-negative bacterium with six serotypes (a through f)

Mode of Transmission: Found in the upper respiratory tract of humans, the organism may be transmitted by direct contact or droplet inhalation of respiratory tract secretions.

Incubation Period: Unknown; probably short, 2-4 days.

Period of Communicability: As long as organisms are present, which may be for a prolonged period, even without nasal discharge. Considered noncommunicable within 24-48 hours after starting effective antibiotic therapy.

Public Health Significance: Before *H. influenzae* type b (Hib) conjugate vaccinations, *H. influenzae* type b was the leading cause of invasive diseases among children under 5 years of age. Immunization has been an effective method of limiting invasive HiB disease. Preventive antibiotics may prevent illness in close contacts to known cases of HiB, especially susceptible children.

Reportable Disease in Kansas Since: 1997

Laboratory Criteria for Surveillance Purposes

- Isolation of *H. influenzae* from a normally sterile site, such as blood, bone, joint, pericardial fluid, peritoneal fluid, or spinal fluid. (Note: Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae*.)

Surveillance Case Definitions

- *Confirmed:* A clinically compatible case that is laboratory confirmed.

- *Probable:* A clinically compatible case with detection of *H. influenzae* type b antigen in CSF.

Epidemiology and Trends

2004 Kansas Count: 8

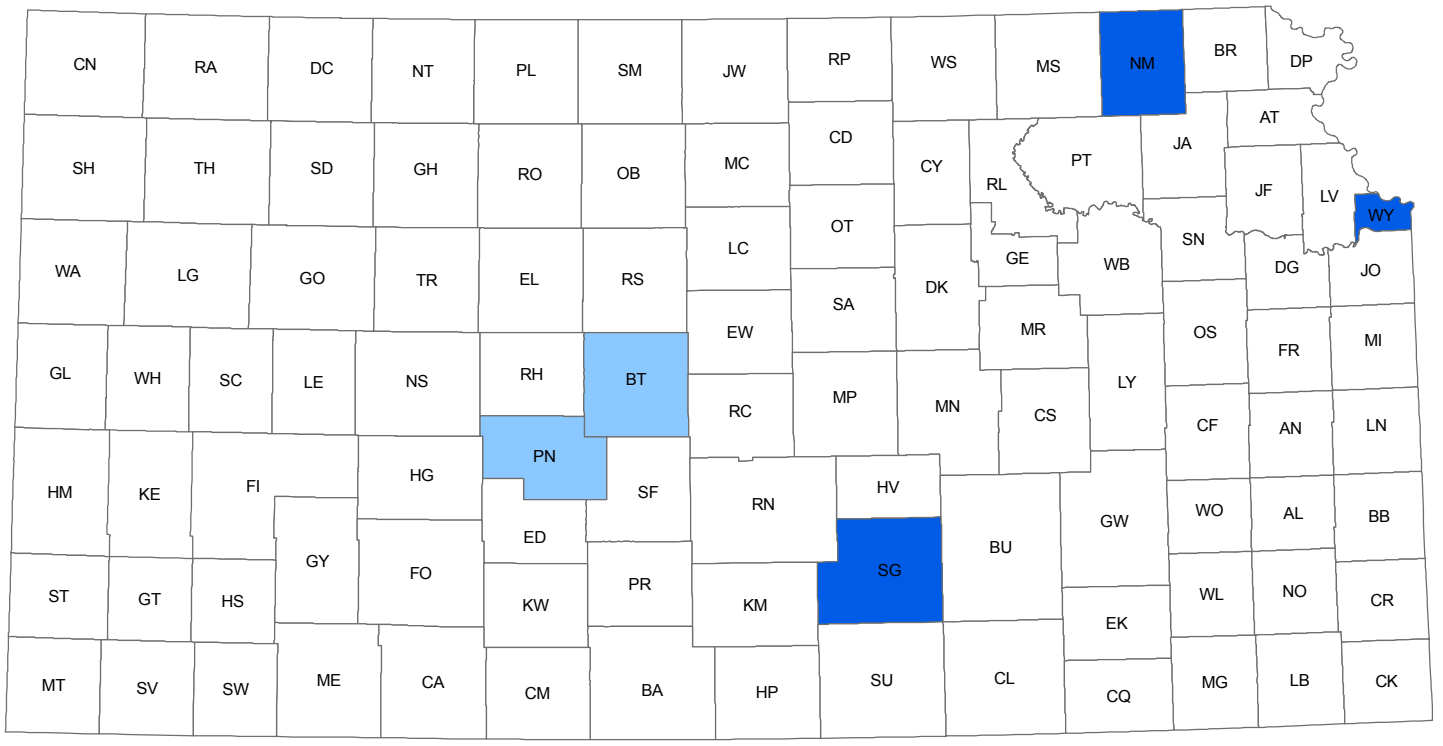
	Rate per 100,000	*95% CI*
Kansas Rate	0.3	(0.1 – 0.5)
U.S. Rate (2003)	0.7	*NA*

In 2004, there were eight reported cases of invasive *Haemophilus influenzae* infections in Kansas. This was a decrease from the 15 cases reported in 2003. The three-year median for 2001-2003 was eight cases; since 1997 there have been zero to 15 cases reported annually. The cases ranged from one to 74 years of age. One (12.5%) case was younger then 5 years of age, and two (25%) cases were over the age of 65.

Conjugate vaccines became available in 1990 for use in infants as young as 6 weeks of age and there was an immediate and sustained decrease among the reported HiB cases among children in Kansas and in the U.S. Before introduction of the vaccine an average of 31-72 HiB cases were seen annually in Kansas. In 2004, serotype information was available for six of the eight reported cases—none were serotype B. Three cases were reported as serotype F, one case was reported as serotype E, and 2 cases were reported as "non-typeable, non-type B."

The national HiB immunization goal for the year 2010 is a 90% coverage rate among two-year old children for the complete HiB vaccination series. According to 2004 National Immunization Survey Data, Kansas' estimated coverage rate for the third dose of the *Haemophilus influenzae* type b vaccine was 93.0% ($\pm$ 4.8%).

Haemophilus influenzae Invasive Disease Cases by County, 2004



HANTAVIRUS PULMONARY SYNDROME (HPS)

Clinical Features: Typically, HPS begins nonspecifically with fever, myalgia, gastrointestinal complaints, headache, chills, and cough. This is followed by an abrupt onset of respiratory distress, hypotension, and pulmonary edema leading to respiratory failure. Mortality rate for HPS is approximately 40 – 50%. Survivors rapidly recover from the acute illness, but may have lingering pulmonary effects. Normal lung function will usually return.

Causative Agent: Multiple hantaviruses. In North America the most common is the *Sin Nombre* virus. The deer mouse is the primary reservoir for the virus.

Mode of Transmission: Inhalation of aerosolized rodent excreta is the presumed method of infection. The white-footed deer mouse (*Peromyscus maniculatus)* is the rodent vector for the virus; antibodies have also been found in other species of rodents.

Incubation Period: Ranges from several days to six weeks, usually about 2 weeks.

Period of Communicability: None. Human to human transmission does not occur.

Public Health Significance: Infections may be prevented through the control of rodents.

Reportable Disease in Kansas Since: 1997

Clinical Criteria

An illness characterized by one of the following:

- A febrile illness (temperature > 101.0 ^{o}F) characterized by bilateral diffuse interstitial edema that may radiographically resemble ARDS, with respiratory compromise requiring supplemental oxygen, developing within 72 hours of hospitalization, and occurring in a previously healthy person; or
- An unexplained respiratory illness resulting in death, with an autopsy examination demonstrating noncariogenic pulmonary edema without an identifiable cause.

Laboratory Criteria for Surveillance Purposes

- Detection of hantavirus-specific IgM or rising titers of hantavirus-specific IgG; or
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction in clinical-specimens; or
- Detection of hantavirus antigen by immunohistochemistry.

Surveillance Case Definitions

- *Confirmed:* A clinically compatible case that is laboratory confirmed.

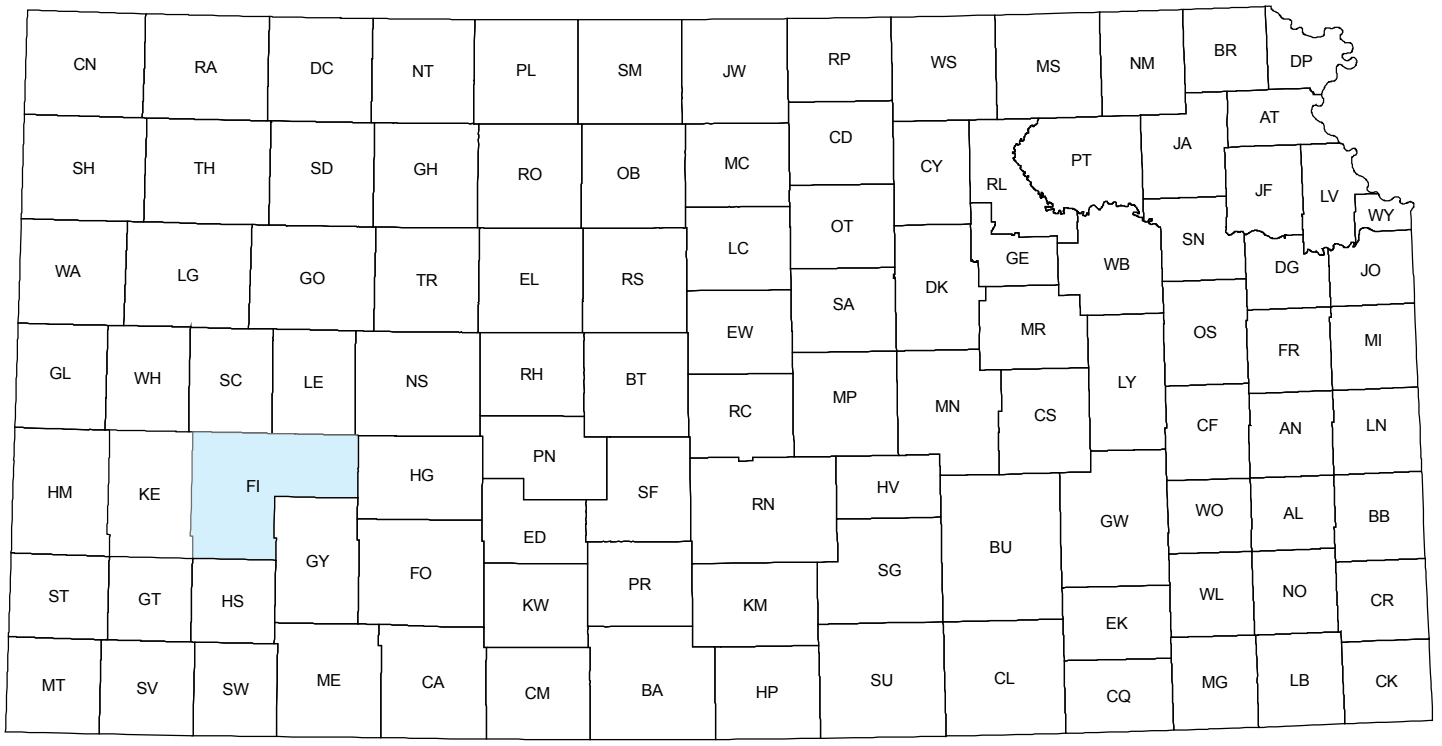
Epidemiology and Trends

2004 Kansas Count: 1

	Rate per 100,000	*95% CI*
Kansas Rate	<0.1	(0 - 0.1)
U.S. Rate (2003)	<0.1	*NA*

In 2004 there was one confirmed case of hantavirus pulmonary syndrome which resulted in a hospitalization, but no death. The three-year median for 2001-2003 was 1 case. Since 1993, there have been 0 - 4 cases reported annually, for a total of 18 cases. Six (33%) of these cases have been fatal.

Hantavirus Pulmonary Syndrome Cases by County, 2004



HEMOLYTIC UREMIC SYNDROME, POSTDIARRHEAL

Clinical Features: Hemolytic uremic syndrome (HUS) is characterized by the acute onset of microangiopathic hemolytic anemia, renal injury, and low platelet count. Thrombotic thrombocytopenic purpura (TTP) also is characterized by these features but can include central nervous system (CNS) involvement and fever and may have a more gradual onset. Most cases of HUS (but few cases of TTP) occur after an acute gastrointestinal illness (usually diarrheal). Some evidence has suggested that the use of antimicrobial therapy may precipitate complications like HUS.

Causative Agent: Shiga toxin-producing bacteria. *E. coli* O157:H7 causes an estimated 90% of HUS cases; *Shigella dysenteriae* type 1 may also cause HUS.

Mode of Transmission: HUS is not transmissible, although its causative agent may be transmitted via the fecal-oral route—susceptible individuals ingest food or liquids contaminated with human or animal feces. Outbreaks have been linked to animal contact, eating undercooked ground beef, consuming contaminated produce, and drinking contaminated water or unpasteurized juice. Person-to-person transmission may also occur, especially within daycare settings and nursing homes.

Incubation Period: Undefined. HUS is typically diagnosed a week or more after the onset of diarrhea

Period of Communicability: *N/A*

Public Health Significance: HUS is most commonly caused by *E. coli* O157:H7, a bacterium often associated with contaminated beef and food products. Monitoring this disease serves as a potential indicator to problems in meat, fruit, and/or vegetable processing. Risk for HUS may be lowered if *E. coli* O157:H7 enteritis patients are not treated with antimicrobial agents.

Reportable Disease in Kansas Since: 2000

Laboratory Criteria for Surveillance Purposes

- Anemia (acute onset) with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear, ***AND***
- Renal injury (acute onset) evidenced by either hematuria, proteinuria, or elevated creatinine level (i.e., greater than or equal to 1.0 mg/dL in a child aged less than 13 years or greater than or equal to 1.5 mg/dL in a person aged greater than or equal to 13 years, or greater than or equal to 50% increase over baseline)

Surveillance Case Definitions

- *Probable*:

    - An acute illness diagnosed as HUS or TTP that meets the laboratory criteria in a patient who does not have a clear history of acute or bloody diarrhea in preceding 3 weeks, ***OR***

    - An acute illness diagnosed as HUS or TTP, that a) has onset within 3 weeks after onset of an acute or bloody diarrhea and b) meets the laboratory criteria except that microangiopathic changes are not confirmed

- *Confirmed*: an acute illness diagnosed as HUS or TTP that both meets the laboratory criteria and began within 3 weeks after onset of an episode of acute or bloody diarrhea

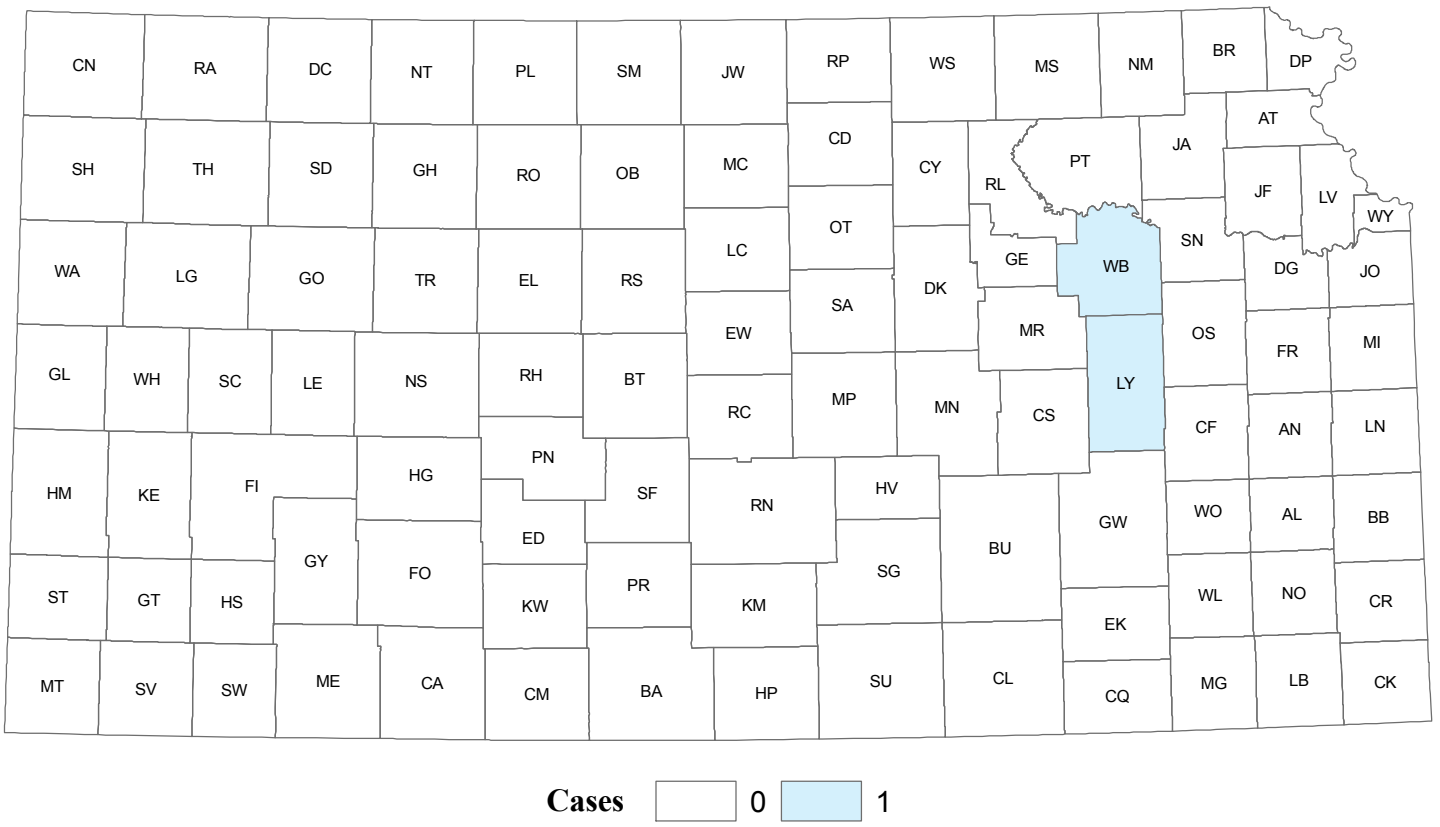
Epidemiology and Trends

2004 Kansas Count: 2

	Rate per 100,000	*95% CI*
Kansas Rate	0.1	(0.0 – 0.2)
U.S. Rate (2003)	0.06	*NA*

Two cases of postdiarrheal hemolytic uremic syndrome were confirmed in Kansas in 2004. The causative agent was not isolated from either case.

HUS Cases by County, 2004



HEPATITIS A

Clinical Features: Abrupt onset of fever, malaise, anorexia, abdominal cramps, and sometimes diarrhea. Jaundice may develop a few days after onset.

Causative Agent: Hepatitis A virus

Mode of Transmission: Transmission is by (1) person-to-person, direct fecal-oral contact; (2) consumption of food or beverages contaminated by an infectious person (indirect-fecal oral contact); or (3) consumption of undercooked food exposed to contaminated water or feces (ie, mollusks, lettuce, strawberries)

Incubation Period: 15 to 50 days (average 28 to 30 days)

Period of Communicability: From the latter half of the incubation period to a maximum of 7 days after the onset of jaundice. This can be as long as one month.

Public Health Significance: Hepatitis A continues to be one of the most frequently reported vaccine-preventable diseases in the United States. An inactivated hepatitis A vaccine is very effective in preventing infection; it is recommended for travelers to countries where hepatitis A is a common infection as well as for high-risk adults and children residing in these countries.

Gamma globulin (IG) can help prevent hepatitis A if administered soon after infection, and is recommended for people who live in the same house as a person with hepatitis A, for sexual contacts of a person with hepatitis A, and for children in the same day care center with a child with hepatitis A. IG is **NOT** given to casual contacts of a person with hepatitis A because the risk of infection in these situations is extremely small.

The goal of hepatitis A surveillance in Kansas is to identify cases and apply appropriate control measures. Control measures include contact identification and administration of post-exposure prophylaxis. If control measures are completed in a timely fashion, outbreaks can be prevented.

Reportable Disease in Kansas Since: 1982

Clinical Criteria

- An acute illness with (a) discrete onset of symptoms and (b) jaundice or elevated serum aminotranferase levels.

Laboratory Criteria for Surveillance Purposes

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive.

Surveillance Case Definitions

- *Confirmed:*

    - a case that meets the clinical case definition and is laboratory confirmed, ***OR***
    - a case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (e.g., household or sexual contact with an infected person during the 15-50 days before the onset of symptoms).

Epidemiology and Trends

2004 Kansas Count: 22

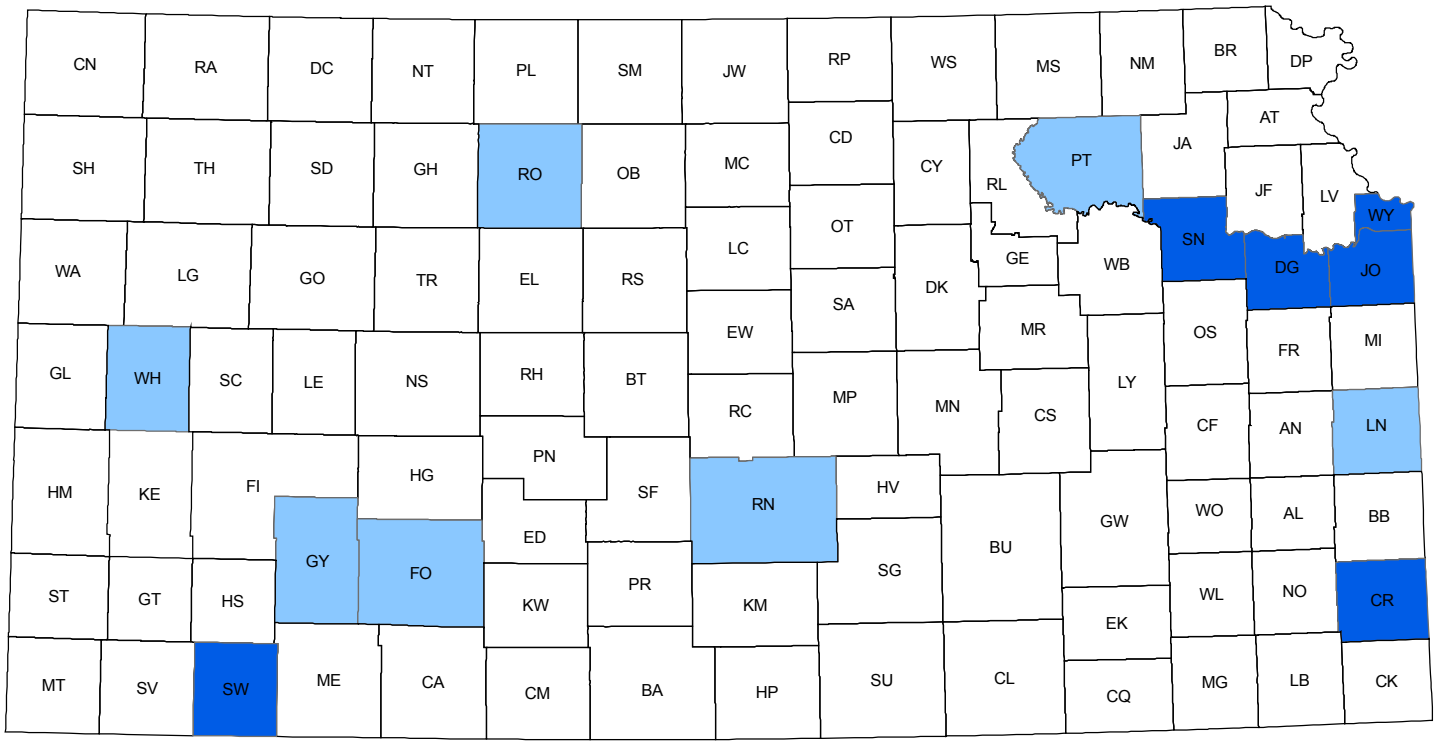
	Rate per 100,000	*95% CI*
Kansas Rate	0.8	(0.5 – 1.1)
U.S. Rate (2003)	2.7	*NA*

Twenty-two cases of hepatitis A were reported in Kansas in 2004, an 18% increase compared to the 26 cases reported in the previous year. The three-year median for 2001-2003 was 70 cases. The 2004 cases ranged in age from 5 to 76 years; the median age was 24 years. No outbreaks of hepatitis A were detected; however, in one household, secondary transmission was noted.

An equal number of males and females were affected. Eighty-two percent (18) of the cases occurred in Whites, 4% (1) in Asian / Pacific Islanders, and in 14% of the cases race was unknown. Of the 22 cases, 32% were Hispanic, 50% were non-Hispanic, and ethnicity was unknown for 18%. Although Hispanics represented 32% of the case total, their incidence rate was higher (3.3 per 100,000) compared to non-Hispanics (0.4 per 100,000).

Risk factors during the 2-6 weeks prior to illness were collected on 17 of the 22 cases. Reported risk factors included eating of raw shellfish (2), use of street drugs (2), and history of travel to foreign travel (9). Regions and countries traveled included: South / Central America (8), and India (1).

Hepatitis A Cases by County, 2004



HEPATITIS B

Clinical Features: Acute hepatitis B is an acute illness characterized by anorexia, abdominal discomfort, nausea and vomiting, sometimes with rash and joint pain. Jaundice is present in <10% of children and <50% of adults. A low grade fever may also be present. Chronic hepatitis B illness may or may not demonstrate symptoms of hepatic inflammation. Only about one third of patients have elevated aminotransferase levels, which may fluctuate with intermittent exacerbations of hepatic inflammation. Chronic cases may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.

Causative Agent: Hepatitis B virus

Mode of Transmission: Transmission occurs via percutaneous or permucaosal exposure: i.e. (1) infected blood or body fluids introduced at birth, (2) through sexual contact, or (3) by contaminated needles. Blood (and serum-derived fluids), saliva, semen, and vaginal fluids have been shown to be infectious. The likelihood of transmission is greater if the *e* antigen or viral DNA is present in an individual's blood.

Incubation Period: Usually 45 to 180 days (average 60 to 90 days)

Period of Communicability: All persons who are hepatits B surface antigen (HbsAg) positive are potentially infectious; some individuals may clear the surface antigen from their blood, while others may not.

Public Health Significance: According to CDC, both acute and chronic hepatitis B cases are major causes of morbidity and mortality in the US. However, transmission of hepatitis B can be interrupted by vaccination and early identification of cases and their contacts. Timely identification of susceptible contacts of hepatitis B cases allows for effective post-exposure prophylaxis. Timely post-exposure prophylaxis is highly effective in preventing hepatitis B transmission from mother to infant. For this reason, all pregnant mothers are required to be tested for hepatitis B during pregnancy.

Routine hepatitis B vaccine is recommended for all children at birth, 1-2 and 6-18 months of age or, if not previously received, at 11-12 years of age. Hepatitis B vaccine is also recommended for persons in the following high risk groups: persons with occupational risk, clients and staff of institutions for the developmentally disabled; hemodialysis patients; recipients of certain blood products; household and sexual partners of HBsAg carriers; international travelers visiting high prevalence areas; injecting drug users; sexually active persons with multiple partners; and inmates of long-term facilities.

Reportable Disease in Kansas Since: 1982

ACUTE HEPATITIS B

Clinical Criteria

- An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels

Laboratory Criteria for Surveillance Purposes

- IgM antibody to hepatitis B core antigen (anti-HBc) positive or hepatitis B surface antigen (HBsAg) positive, ***AND***
- IgM anti-HAV negative (if done)

Surveillance Case Definitions

- *Confirmed:*
    - a case that meets the clinical case definition and is laboratory confirmed

Epidemiology and Trends

2004 Kansas Count: 22

	Rate per 100,000	*95% CI*
Kansas Rate	0.7	(0.4 – 1.0)
U.S. Rate (2003)	2.6	*NA*

CHRONIC HEPATITIS B

Laboratory Criteria for Surveillance Purposes

- Hepatitis B surface antigen (HBsAg) positive, total anti-HBc positive (if done) and IgM anti-HBc negative, ***OR***
- HBsAg positive two times at least 6 months apart

Surveillance Case Definitions

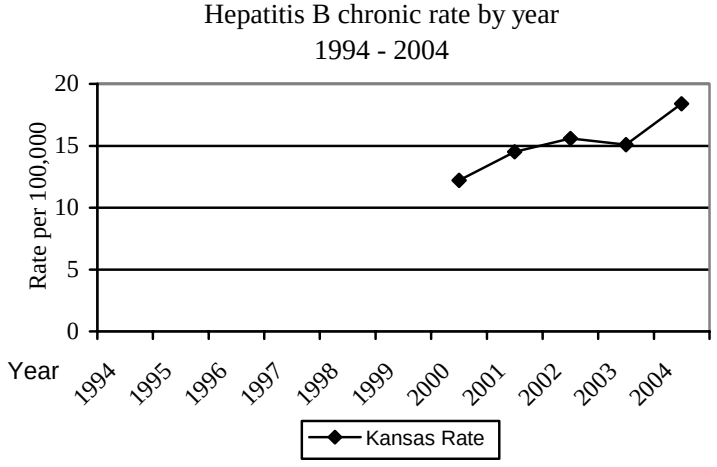
- *Confirmed:* A case that is laboratory confirmed

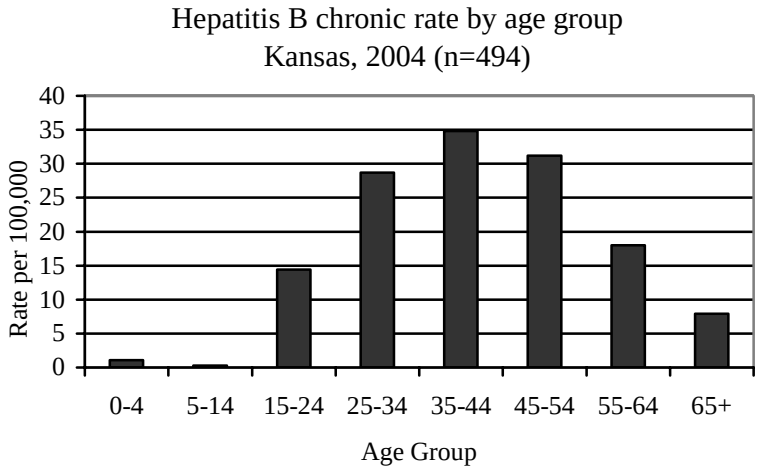
Epidemiology and Trends*

2004 Kansas Count: 502

	Rate per 100,000	*95% CI*
Kansas Rate	18.4	(16.8 – 20.0)
U.S. Rate (2003)	*NA*	*NA*
Gender		
Male	23.0	(20.5 – 25.6)
Female	13.6	(11.7 – 15.6)
Geographic area		
Urban County	30.1	(27.2 – 33.0)
Non-Urban County	6.4	(5.0 – 7.8)

**Race and ethnicity data was unknown for the majority of hepatitis B cases. As a result, rates were not calculated.*

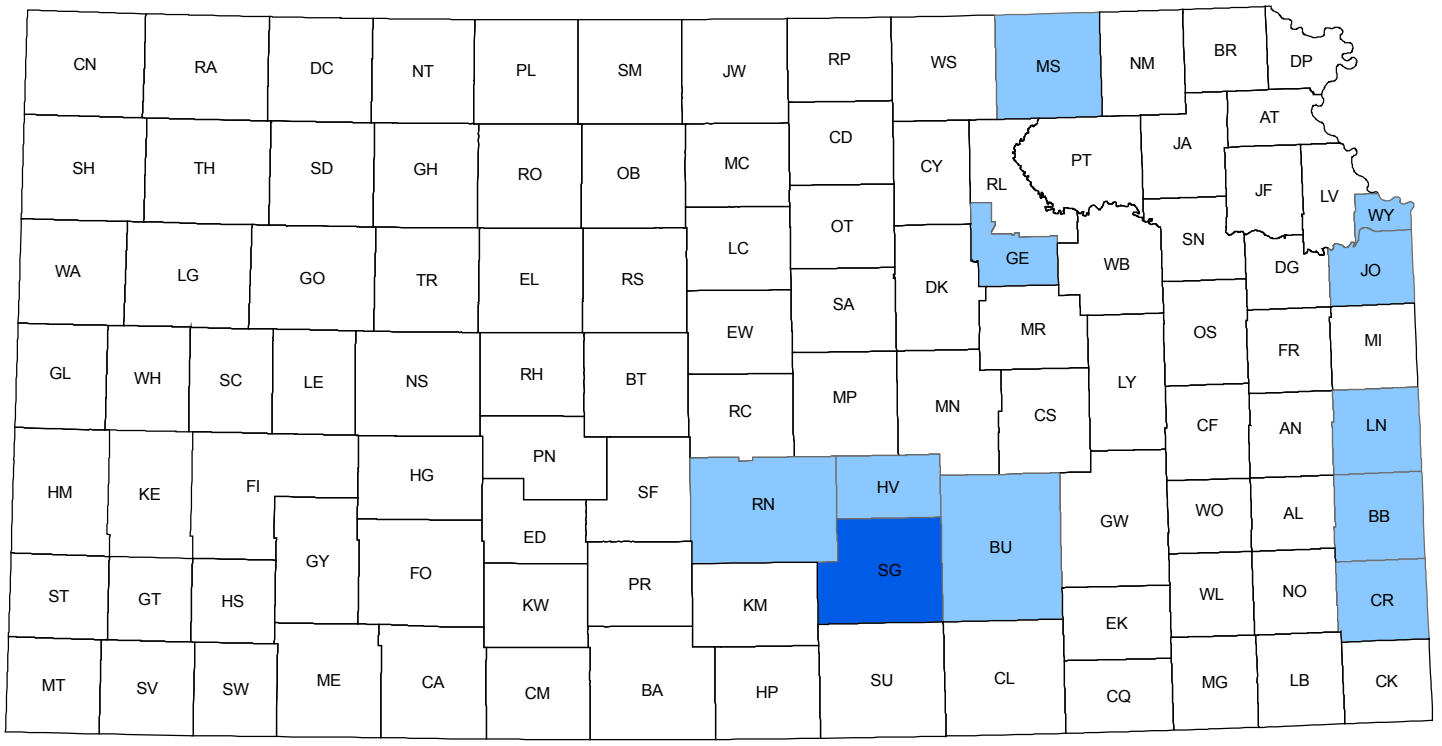




In 2004, there were 502 prevalent cases of hepatitis B reported, an 18% increase compared to the 409 cases in 2003. Prevalent cases are defined as chronically ill individuals that have tested positive for HBsAg. The cases ranged from 0 to 89 years of age; age was not reported for 6 cases. Two cases were less than 1 year of age when reported—both were adopted from Asian countries. The largest numbers of chronic hepatitis B cases were in the 35-44 (137 cases, 34.8 / 100,000) and 45-54 (120 cases, 31.2 / 100,000) year age groups. The ratio of urban (416) to non-urban cases (86) was 4.8 to 1. Race and ethnicity demographics are not collected in at least half of the cases. Race was not specified in 53% and ethnicity was not specified in 60% of the cases. Rates are not reported for race or ethnicity because of the missing information.

According to WHO, hepatitis B prevalence is highly endemic in Southeast Asia, China, and the Pacific Islands (except Australia, Japan, and New Zealand). In these countries, more than 8% of the population has chronic hepatitis B. This may explain the high proportion of reported chronic hepatitis B within Asian and Pacific Islanders compared to other racial groups.

Acute Hepatitis B Cases by County, 2004



HEPATITIS C

Clinical Features: Initial infection may be asymptomatic or mild (<90% of cases), chronic infection is common (55% to 85% of cases). Approximately 70% of the chronically infected will develop chronic liver disease, cirrhosis or hepatocellular carcinoma. Liver function tests may be elevated or normal during chronic disease.

Causative Agent: The Hepatitis C virus (HCV) is an enveloped RNA virus in the Flavivirdae family.

Mode of Transmission: Primarily as a bloodborne pathogen (e.g. sharing of contaminated objects, especially needles and syringes)—transmission through sexual contact may also occur, although this is rare.

Incubation Period: The incubation period ranges from 2 weeks to 6 months, averaging 6-9 weeks. Acute hepatitis C infection will convert to a chronic carrier state within 6 months if the acute infection does not resolve. Chronic infection may persist for 10 to 20 years prior to onset of symptoms.

Period of Communicability: Communicability persists as long as virus is present in the body. Chronic cases are considered infectious for life. Peaks in virus concentration correlate with peaks in ALT activity.

Public Health Significance: Preventative measures for Hepatitis C include behavior modifications that also lower risk factors for acquiring other diseases, such as HIV. While no vaccine exists for hepatitis C, vaccination against hepatitis A and B are recommended for infected individuals.

Reportable Disease in Kansas Since: 2000

Laboratory Criteria for Surveillance Purposes *(Chronic Hepatitis C)*

- Anti-HCV positive by EIA, verified by an additional specific assay (e.g. RIBA for anti-HCV or nucleic acid testing (PCR) for HCV RNA, ***OR***
- HCV RIBA positive, ***OR***
- Nucleic acid test (PCR) for HCV RNA positive, ***OR***
- Anti-HCV positive screening with a signal to cut-off ratio ≥ 3.8 (KDHE laboratory) and ≥ 3.0 (Private laboratory).

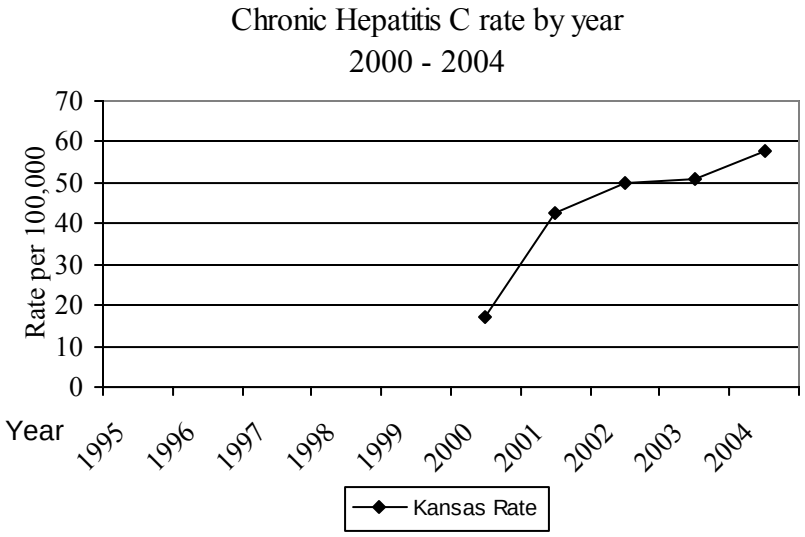
Surveillance Case Definitions *(Chronic Hepatitis C)*

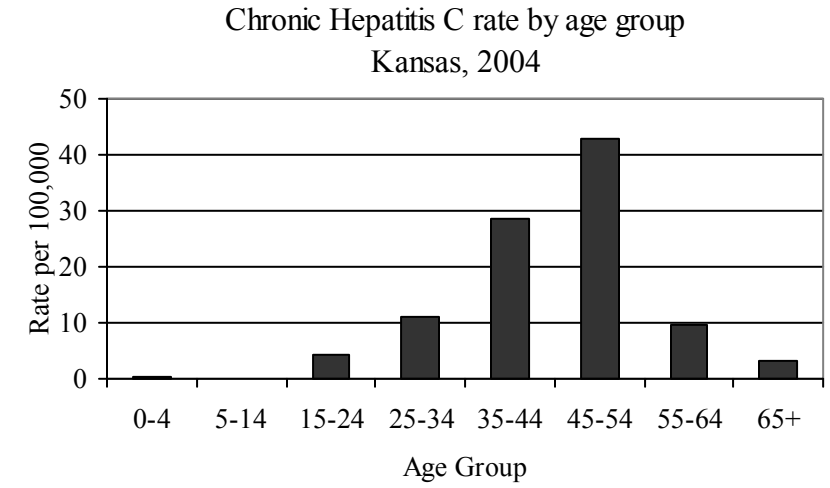
- *Confirmed:*
  - A case which is anti-HCV positive by EIA with a positive supplemental test (PCR or RIBA), ***OR***
  - Positive test result by PCR or RIBA alone, or by signal to cut-off ratio, but fails to meet the case definition for acute HCV

- *Probable:* A case that is anti-HCV positive by EIA but has no testing to confirm or the signal to cut-off ratio is unknown.

2004 Kansas Count: 1579

	Rate per 100,000	*95% CI*
Kansas Rate	58.0	(55.1 - 60.8)
U.S. Rate (2003)	*NA*	*NA*
Gender		
Male	73.5	(68.9 - 78.0)
Female	42.4	(39.0 - 45.8)
Race		
White	29.9	(27.8 - 32.1)
Black	59.0	(44.9 - 67.1)
Asian/Pacific Islander	20.8	(9.5 - 32.1)
Native American	62.0	(34.1 - 89.9)
Ethnicity		
Hispanic	20.7	(14.6 - 26.8)
Non-Hispanic	25.4	(23.4 - 27.4)
Geographic area		
Urban County	64.9	(60.7 - 69.2)
Non-Urban County	50.8	(47.0 - 54.6)





In 2004, 1,579 chronic hepatitis C cases were reported - a 12% increase when compared with 2003. The four-year median for 2000-2004 was 1,360 reported cases. Reports of chronic hepatitis C have steadily increased since the disease became reportable in 2000; this may be due to increasing awareness and availability of testing and improvement in the reporting of cases to KDHE.

No acute HCV cases were reported to KDHE in 2004 (0 cases reported in 2003 and 5 cases in 2002). The nature and difficulty of diagnosing acute HCV, the strict case definition, and the low rate of occurrence in Kansas may be reasons for the decline in 2003 and 2004.

The ages of reported chronic HCV cases ranged from less than 1 to 91 years of age—the median age was 46. Hepatitis C was reported in all age groups, but 71.4% of all cases occurred in the 35-44 (452 cases, 115.0/100,000) and 45-54 (676 cases, 176.0/100,000)

age categories. Cases in these two age categories may represent prior unreported infections. Alternatively, chronic HCV is often asymptomatic; persons in these two age categories may have been infected 10 to 20 years prior to positive-HCV confirmation.

The ratio of males to females was 1.7:1. Cases from four urban counties—Sedgwick, Johnson, Wyandotte, and Shawnee—represented 56.7% of all cases reported. Of the 2004 cases, 735 (46.6%) were White, 98 (6.2%) were African-American, 19 (1.2%) were Asian/Pacific Islanders, and 13 (0.8%) were Native American. Race was not reported for 707 (44.8%) of the cases. Hispanic ethnicity accounted for 2.8% (44) of the cases, although ethnicity was not reported in 56.8% (897) of the cases. Improved collection of race and ethnicity information is needed to more definitively describe the burden of chronic HCV prevalence.

HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

Clinical features: HIV, a retroviral pathogen that damages the body's immune system, is the causative agent for AIDS. With a weakened immune system, other pathogens may easily invade the body, allowing opportunistic diseases to develop and cause death. Most people infected with HIV develop detectable antibodies within 1-3 months after infection, but may remain free of signs or symptoms for several months to years. AIDS is a severe, life-threatening condition first recognized as a distinct syndrome in 1981. Clinical illness may include lymphadenopathy, chronic diarrhea, weight loss, fever, and fatigue. The severity of HIV-related illness is, in general, directly related to the degree of immune dysfunction.

Causative agent: Human immunodeficiency virus (HIV), a retrovirus. Two types have been identified: type 1 (HIV-1) and type 2 (HIV-2). These viruses are serologically and geographically relatively distinct but have similar epidemiologic characteristics.

Mode of transmission: HIV can be transmitted from person to person through sexual contact, as a bloodborne pathogen (e.g. sharing of contaminated needles and syringes; transfusion of blood or its components; transplantation of HIV infected tissues or organs) and HIV infected pregnant women can infect their children before, during or shortly after birth, as well as through breast-feeding.

Incubation period: Variable, although the time from infection to the development of detectable antibodies is generally 1-3 months. The time from HIV infection to diagnosis of AIDS has been observed to range of less than one year to 15 years or longer.

Period of communicability: Unknown, presumed to begin early after onset of HIV infection and extend throughout life.

Public health significance: HIV is currently pandemic. As a preventable infectious disease with chronic health implications and no recognized cure, the prevention of future infections and the initiation of prevention services is important to reducing the burden of the disease on the infected and potentially susceptible public. Case reports initiate disease intervention specialist interviews for cases and contacts that help to establish links between cases and case management services (Ryan White CARE funding, drug and housing assistance programs) and physicians specializing in the treatment of HIV infected individuals. Additionally, these interviews serve to counsel individuals on methods for preventing further transmission of the disease to other persons.

Reportable disease in Kansas since: AIDS-1981; HIV-July 1, 1999

Laboratory Criteria for Surveillance Purposes

AIDS

- Detection of either a) CD4+ T-lymphocytes/µL <200; b) a CD4+ T-lymphocyte percentage of total lymphocytes of <14%; or c) any of 24 specific diseases or syndromes.

HIV

- Western blot confirmed (positive/reactive) antibody test, HIV p24 antigen test, HIV nucleic acid (DNA or RNA) detection, HIV isolation (viral cultures).

Surveillance Case Definitions

AIDS

- All HIV-infected adolescents aged 13 years and adults who have either (a) a CD4+ t-lymphocyte count <200 or <14% or (b) been diagnosed with one of the AIDS defining opportunistic infections. Complete information on the case definition can be found in MMWR 1997; 46 (No. RR-10).

- The AIDS surveillance case definition for children aged <13 years includes the clinical conditions listed in the AIDS surveillance case definition found in MMWR 1997; 46 (No. RR-10).

HIV

- A case that is laboratory confirmed.

Note:

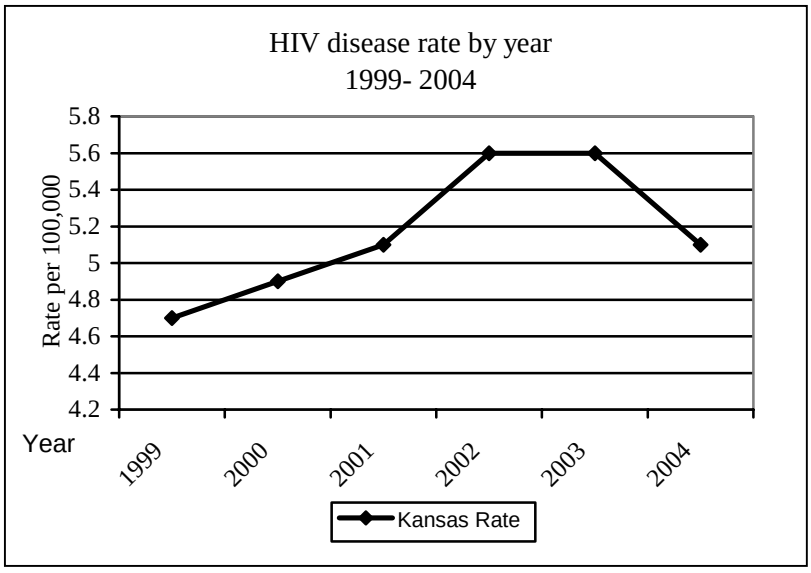
- The case definitions for adult and pediatric HIV infections have been expanded effective 1/1/2000. It includes HIV nucleic acid (DNA or RNA) detection tests (viral load tests) that were not available when the AIDS case definition was revised in 1993.
- HIV infection and AIDS are reportable in Kansas. A person previously reported as HIV infected is reported again as an AIDS case if an AIDS diagnosis is made.
- More detailed information on AIDS is available in the Kansas AIDS/STD Update, the "HIV/AIDS Epidemiologic Profile", and at www.kdhe.state.ks.us/hiv-std.

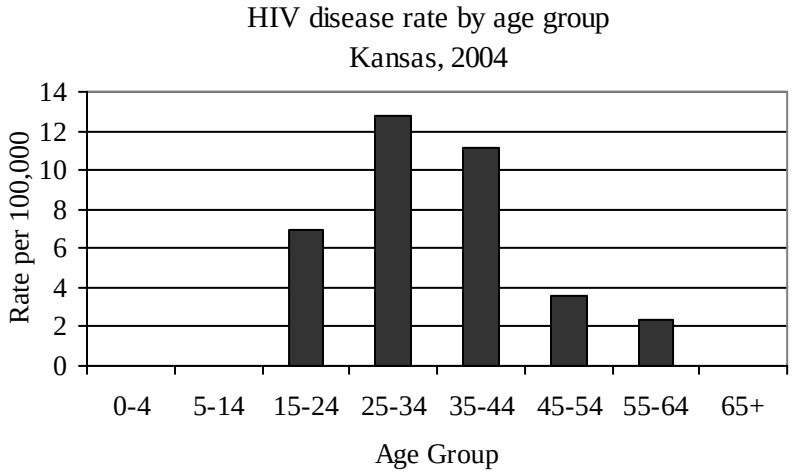
HIV Disease[1] Epidemiology and Trends

2004 Kansas Count: 138

	Rate per 100,000	*95% CI*
Kansas Rate	5.1	(4.2 – 5.9)
U.S. Rate (2003)[2]	*NA*	*NA*
Gender		
Male	8.1	(6.6 – 9.6)
Female	2.1	(1.3 – 2.9)
Race*		
White	2.9	(2.2 – 3.6)
Black	23.5	(15.9 – 31.1)
Native American	5.4	(0.0 – 11.4)
Hispanic	13.2	(8.3 – 18.1)
Geographic area		
Urban County	7.5	(6.1 – 9.0)
Non-Urban County	2.5	(1.7 – 3.4)

[1]HIV disease is defined as HIV infection regardless of AIDS status.
[2] CDC does not calculate a rate for HIV regardless of AIDS status.
**The STD program at KDHE designates "Hispanic" as a race category. As a result, analysis by Hispanic ethnicity is not presented.*





Newly diagnosed and reported HIV infections are the only available indicator for changes in the HIV/AIDS epidemic in Kansas. Previous reports have divided AIDS and HIV data into separate categories, however, in the interest of providing an improved picture of the actual changes in the HIV epidemic the two will no longer be separated in this report. HIV infection will be considered regardless of the diagnostic status (AIDS or HIV) of the newly diagnosed individuals.

At the end of 2004, the state of Kansas HIV/STD Surveillance Program reported 1,513 individuals presumed to be living in Kansas and infected with HIV, among those 1,094 (72%) had been diagnosed with AIDS. The number of newly diagnosed HIV disease cases (regardless of AIDS status) has been generally stable for the last five years, not increasing or decreasing by more than 10% from year to year. Of the 138 newly diagnosed HIV infections in 2004, 50 (36%) were also diagnosed with AIDS in 2004. The associated rate of infection for all newly diagnosed HIV cases based on the entire state population is 5.1 infections per 100,000 persons.

The age (at diagnosis) distribution for newly diagnosed HIV cases from 2004 includes individuals ranging from 19 to 60 years old, with a median age of 33. Excluding the lack of cases among Asian/Pacific Islanders for this reporting period, rates by race/ethnicity illustrate trends are similar to the national rates. However, the small minority populations in Kansas make it difficult to make statistically significant conclusions based on the elevated rates for Black/African-Americans and Hispanics. The difference in rates in Kansas between males (8.1 cases per 100,000 persons) and females (2.1 cases per 100,000 persons) represents the distribution of the disease burden where males accounted for 79% of all newly diagnosed HIV infections in Kansas and does not represent a change from the distribution of newly diagnosed cases last year. Additionally, the five most populated counties in Kansas account for 50.7% of the state's population and 75.4% of the HIV cases. The rate for these urban counties is 7.5 cases per 100,000 persons and the 100 non-urban counties in the state have a rate of 2.5 cases per 100,000 persons.

Stratifying the newly diagnosed HIV infections by risk factor does not present any newly developing trends. Among the newly diagnosed cases 43.5% were among men who have sex with men, 12.3% were among those reporting risky heterosexual contact, and 31.2% are identified as having no classifiable risk factors for transmission. This 31% that cannot currently be classified are divided among those who report heterosexual contact with a person of unknown risk (21/43, 48.8%), those who report heterosexual contact with a person of unknown risk and report a country of origin outside the United States (11/43, 25.6%), and those who have no reported risks of any kind.

One key to improving outcomes for patients is the identification of new HIV infections prior to the conversion to AIDS. According to the 17th edition of the *Control of Communicable Diseases Manual*, edited by Dr. James Chin, "without effective anti-HIV treatment, about half of infected adults will develop AIDS within 10 years after infection."* According to a study done by Neal and Fleming (CDC), "from 1994 through 1999, an estimated 43,089 (41%) had HIV diagnosed late."** Comparatively, the statistics for Kansas indicate that 63 percent of HIV cases are converting to AIDS within one year. Over the last four years there has been some improvement in this statistic; however, it continues to be a prevention priority to encourage testing with the hopes of capturing cases earlier in the course of the disease.

Interval between 1st HIV positive test and AIDS diagnosis in Kansas, 2003*

Interval	2003
12 Months or Less	71 (63%)
13 to 60 Months	19 (17%)
Greater than 60 Months	23 (20%)
Total	113 (100%)

**Note: This table represents the total number of cases diagnosed in 2003 and therefore totals differ from the above rate table, which uses the 2004 date of report for reference.*

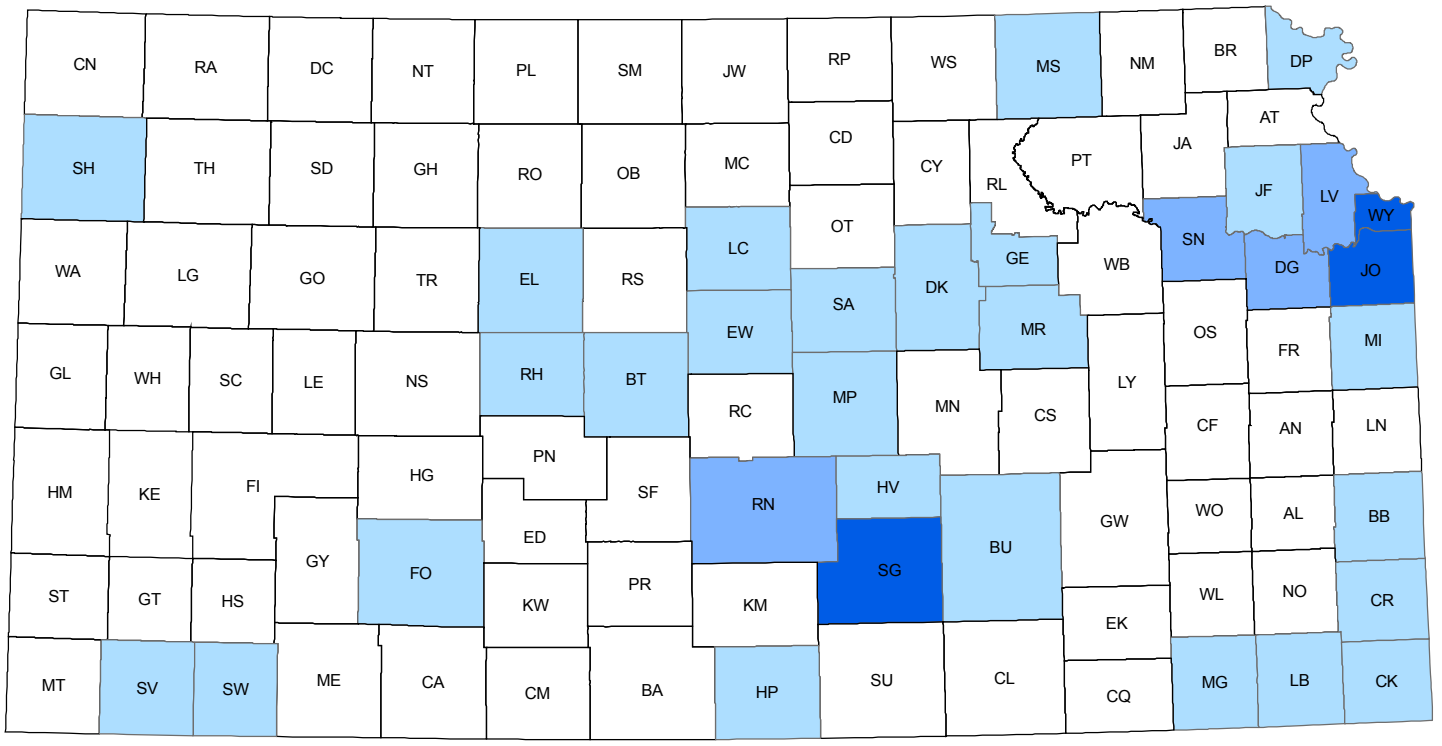
One step in reducing the number of Kansans that are unaware of their HIV status has been the introduction of alternative testing technologies. Kansas began using OraSure (oral fluid testing procedure) tests in May of 2000, linking in-field testing directly to prevention related activities. This linkage has been very successful for new case identification in higher risk populations, finding 1% of those tested to be positive; which is more than three times that of the 0.3% identified in the normal clinical setting. National studies have proven that receiving a test and the results within the same visit reduces the number of individuals who are tested and never receive their results. The introduction of the federally approved OraQuick on July 1, 2004 further enhances the prevention linkage efforts by providing preliminary testing results in about 20 minutes. The availability of rapid testing in Kansas provides an opportunity to increase the number of people with knowledge of their HIV status. Additionally, this technology may improve the opportunity for the identification of new infections prior to the conversion from HIV to AIDS, which should improve the prognosis for Kansans infected with HIV.

The identification of new positives with these tests will, however, add to the burden of an already stretched case management system to provide patients with connections to care and financial assistance.

*Chin J. *Control of Communicable Diseases Manual*, 17th Edition. Washington, DC: American Public Health Association, 2000: 4.

**Neal JJ, Fleming PL. Frequency and predictors of late HIV diagnosis in the United States, 1994 through 1999. In: Final program and abstracts of the 9th Conference on Retroviruses and Opportunistic Infections, Seattle, Washington, February 24-28, 2992. Alexandria, VA: Foundation of Retrovirology and Human Health.

Newly Diagnosed HIV Disease by County, 2004



LEAD POISONING, PEDIATRIC

Clinical features: The common warning signs of lead poisoning such as headache, stomachache, fatigue, loss of appetite or sleep disturbances, can easily be mistaken for common childhood problems. Most children have no symptoms of lead poisoning until the blood lead levels are very high. A blood lead test is the only way to tell if a child has an elevated blood lead level and is recommended as part of standard pediatric check-up. Blood lead testing is mandated as part of Kan Be Healthy health assessment for children under six receiving Medicaid benefits.

Causative agent: Children under the age of six most often become lead-poisoned by ingesting lead contaminated dust through frequent hand-to-mouth activity typical of this age group such as thumb-sucking, chewing on toys, pacifiers, and other objects that have been in contact with dust and soil. Lead-based paint in homes built before 1978 is the most common source of lead exposure for children when painted surfaces are peeling, deteriorating, or disturbed during renovation or remodeling. Other potential sources of lead poisoning include water from leaded pipes, occupational or hobby exposure of the parent, soil contaminated from previous industry and leaded gas emissions, and food contaminated by imported dishes or cans containing lead.

Mode of transmission: The pathways to lead exposure are inhalation and ingestion.

Incubation period: Lead poisoning is not an infectious disease.

Period of communicability: None

Public health significance: Lead poisoning is a preventable pediatric health problem affecting Kansas' children. Lead levels can affect the developing nervous system of young children, resulting in delayed development, decreased IQ, learning problems, and behavior problems. High levels of lead poisoning (greater than 20 Fg/dL) can have adverse effects on the kidneys and blood-producing organs as well as the digestive and reproductive systems. Very high blood lead levels (greater than 70 Fg/dL) can cause devastating health consequences, including seizures, coma and death. The developing fetus is very susceptible to lead exposure and blood lead levels of the mother. Early identification and treatment of lead poisoning reduces the risk that children will suffer permanent damage. According to the Kansas Blood Lead Testing guidelines, child health care providers shall use a blood lead test[1] to screen the following children:

- Child is 12 or 24 months of age[2],
- Child under 6 years of age who has never received a blood lead test[3]
- Child is receiving a Kan-Be-Healthy physical assessment[3],
- Child receives services from Social and Rehabilitation Services (SRS) , Women, Infants and Children (WIC), FirstGuard Health Plan (FG), HealthWave or HealthConnect,
- Child lives within the high-risk areas in Hutchinson, Kansas City, Overland Park, Salina, Topeka, or Wichita.

- Child does not fit the criteria above, but parent/guardian answers "Yes" to any of the following questions[4]:

  "Does your child…
    - Live in or visit a house or apartment built before 1960? (This could include a day care center, preschool, the home of a baby-sitter or relative, etc.)
    - Live in or regularly visit a house or apartment built before 1960 with previous, ongoing or planned renovation or remodeling?
    - Have a family member with an elevated blood lead level?
    - Interact with an adult whose job or hobby involves exposure to lead? (Furniture refinishing, making stained glass, electronics, soldering, automotive repair, making fishing weights and lures, reloading shotgun shells and bullets, firing guns at a shooting range, doing home repairs and remodeling, painting/stripping paint, antique/imported toys, and making pottery)
    - Live near a lead smelter, battery plant or other lead industry? [Ammunition/explosives, auto repair/auto body, cable/wire striping, splicing or production, ceramics, firing range, leaded glass factory, industrial machinery/equipment, jewelry manufacturer or repair, lead mine, paint/pigment manufacturer, plumbing, radiator repair, salvage metal or batteries, steel metalwork, or molten metal (foundry work)]
    - Use pottery, ceramic, or crystal wear for cooking, eating, or drinking?"

  [1] A blood lead test for lead poisoning is a laboratory analysis for lead in the blood of a child or adult.

  [2] Recommended by the American Academy of Pediatrics and the Centers for Disease Control and Prevention.

  [3] Centers for Medicare and Medicaid Services (CMS) and the Kansas Department of Social and Rehabilitation Services (Kan Be Healthy) require a blood lead test at 12 and 24 months. Children between the ages of 36-72 months of age must receive a blood lead test if they have not been previously screened for lead poisoning.

  [4] The risk questionnaire is critical to finding children who are not subject to targeted screening owing to risk factors such as Medicaid eligibility or pre-1960 housing. One positive response to any of the questions requires a blood lead test at this time.

Reportable disease in Kansas since: December 2002

Laboratory Criteria for Surveillance Purposes

- One venous Blood Lead Level ≥10 ug/dL , ***OR***
- Two Blood Lead Levels of ≥10 ug/dL within 12 weeks (capillary or venous).

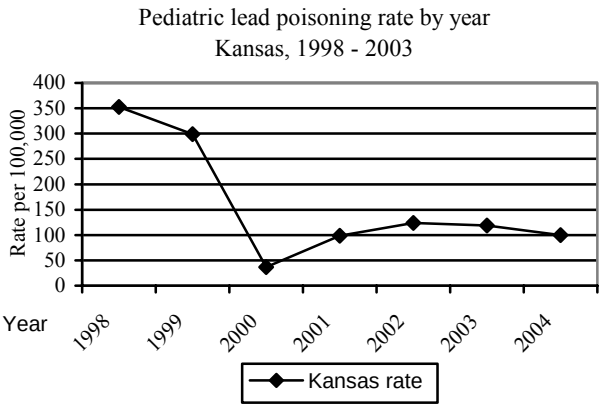
Surveillance Case Definitions

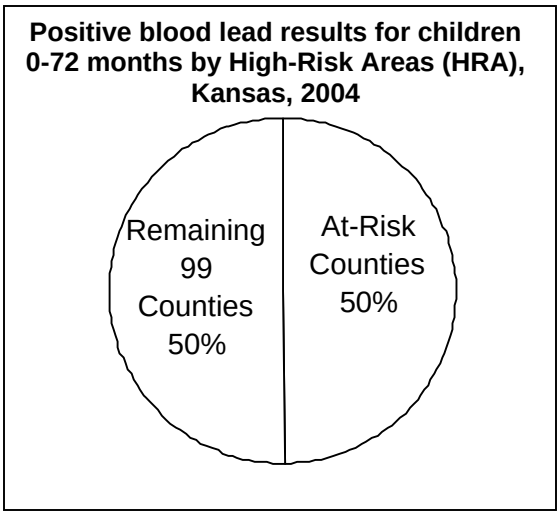
- *Confirmed:* a case that is laboratory confimed.

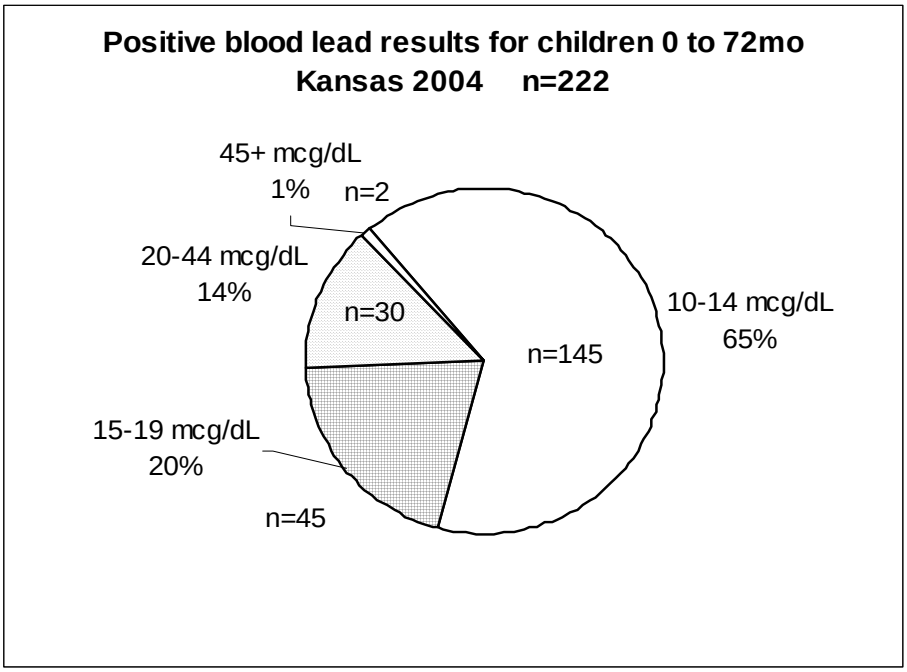
Epidemiology and Trends

2004 Kansas Count: 222

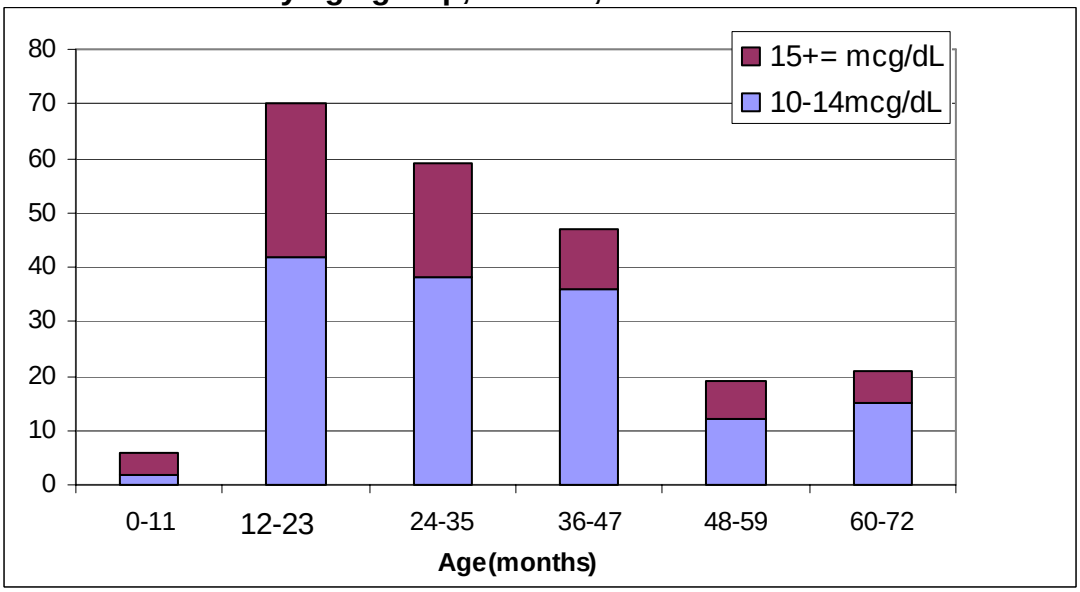
	Rate per 100,000
Kansas Rate	99.7
U.S. Rate (2003)	*NA*
Gender	
Male	114.1
Female	86.4
Race	
White	31.5
Black	74.8
Ethnicity	
Hispanic	69.1
Non-Hispanic	25.3
Geographic area	
Urban County	93.0
Non-Urban County	107.5



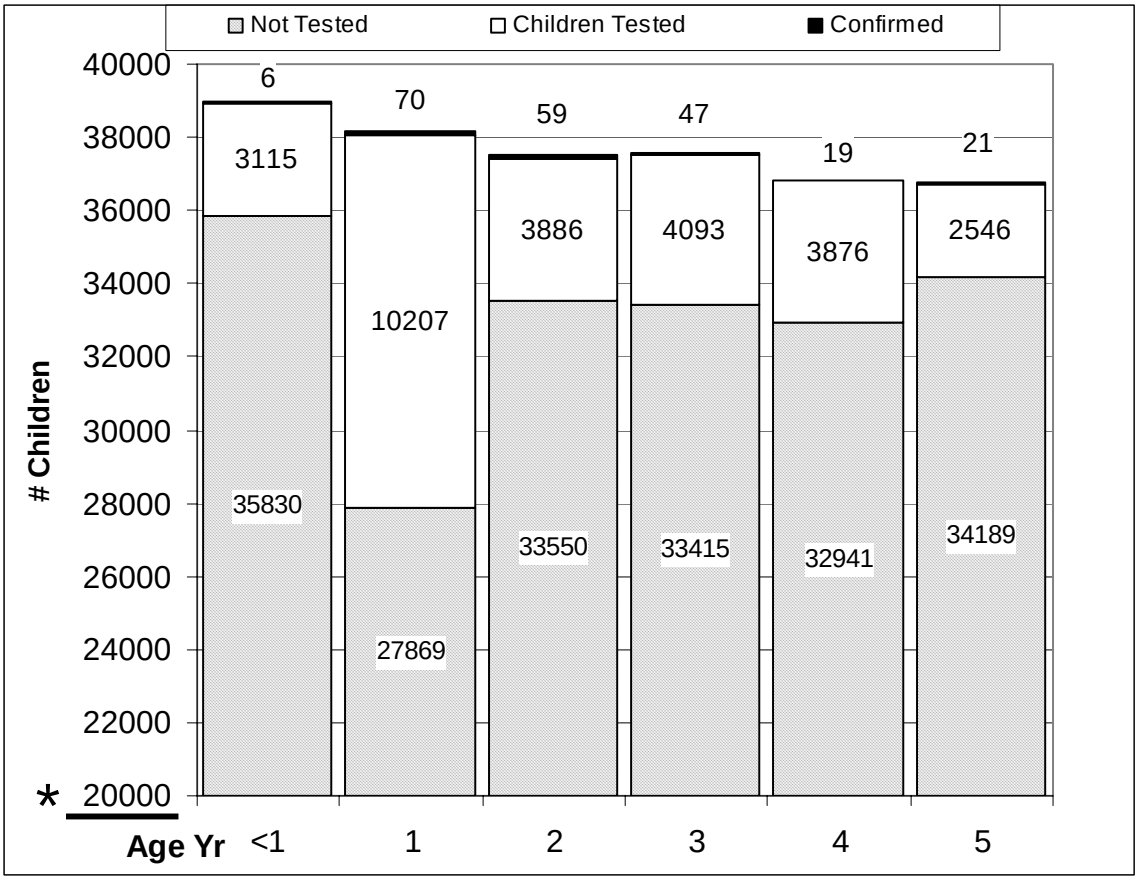


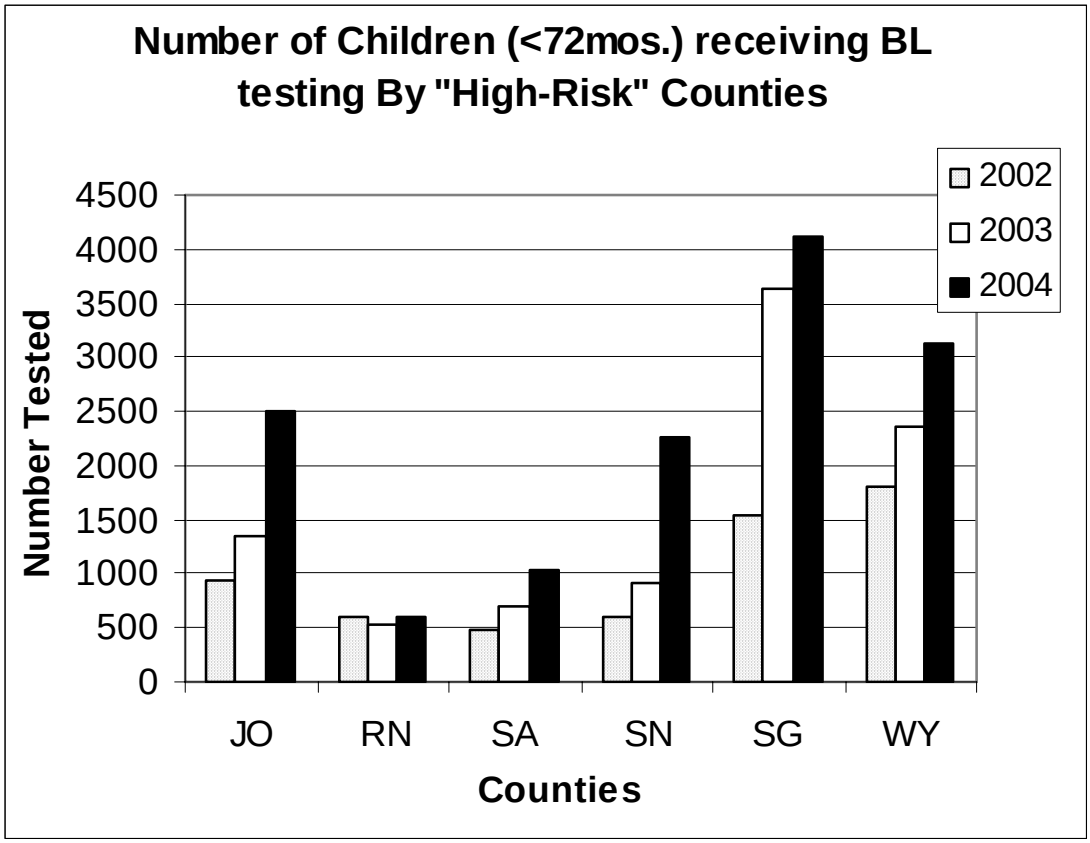


Blood lead level by age group, Kansas, 2004



Number of total target population who have been blood lead tested, number who had elevated blood lead results in 2003





The number of children <72 months of age screened in 2003 was 25,841 compared to 27,723 in 2004. A factor in the increase of children screened may be due to requirement of laboratories to report all blood lead test results, effective December 2002. In 2004, the number of **confirmed** pediatric lead poisoning cases reported in children <6 years old was 222, a decrease of 42 cases from 2003. Decreases in confirmed tests can be due to a number of different factors, for example 1) lack of follow up confirmation testing, 2) inadequate technique with filter paper tests resulting in false negative results, and 3) possible targeted areas are not capturing the risk population.

The age range of confirmed cases was from 0-71 months. The 12-23 month age group accounted for 32% of the reported cases and the 24-47 month age group represented 48% of the pediatric lead cases. The ratio of male to female is about one to one. There were 32 cases (14.4%) with a blood lead level >20μg/dL, a level that would warrant an environmental risk assessment.

A targeting model was implemented to determine "High-Risk" areas using four population-density variables: 1) minority population, 2) impoverished population, 3) children age five and under, and 4) housing density of pre-1960 construction. The six counties where "High-Risk" areas were identified include Johnson, Reno, Saline, Sedgwick, Shawnee, and Wyandotte. These six counties account for 50% of **confirmed** pediatric lead cases.

LEGIONELLOSIS

Clinical Features: Infection may result in either of two distinct illnesses: Legionnaires' disease, characterized by fever, myalgia, cough, and pneumonia, and Pontiac Fever, a milder form of the illness without pneumonia.

Causative Agent: *Legionella spp.,* gram-negative bacilli. *L. pneumophila* serogroup 1 is most commonly associated with disease.

Mode of Transmission: Inhalation of contaminated aerosols from a soil or water source; other modes are possible, but have not been conclusively proven.

Incubation Period: Ranges from 2-10 days. Pontiac Fever has a shorter average incubation period (1-2 days) compared to Legionnaires' disease (5-6 days).

Period of Communicability: Person-to-person spread has not been documented.

Public Health Significance: Legionellosis is an emerging infection that most frequently occurs in the elderly and the immunocompromised. Although most illnesses are sporadic, many outbreaks have been linked to contaminated water tanks, air conditioning cooling towers, evaporative condensers, and soil at excavation sites. Public health goals are outbreak identification and environmental remediation.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Isolation of *Legionella* from respiratory secretions, lung tissue, pleural fluid, or other normally sterile fluids, **OR**
- Demonstration of a fourfold or greater rise in the reciprocal immunofluorescence antibody (IFA) titer to $128 against *Legionella pneumophila* serogroup 1 between paired acute- and convalescent-phase serum specimens, **OR**
- Detection of *L. pneumophila* serogroup 1 in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody testing, **OR**
- Demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay or enzyme-linked immunosorbent assays.

Surveillance Case Definitions

Confirmed: A clinically compatible case that is laboratory confirmed.

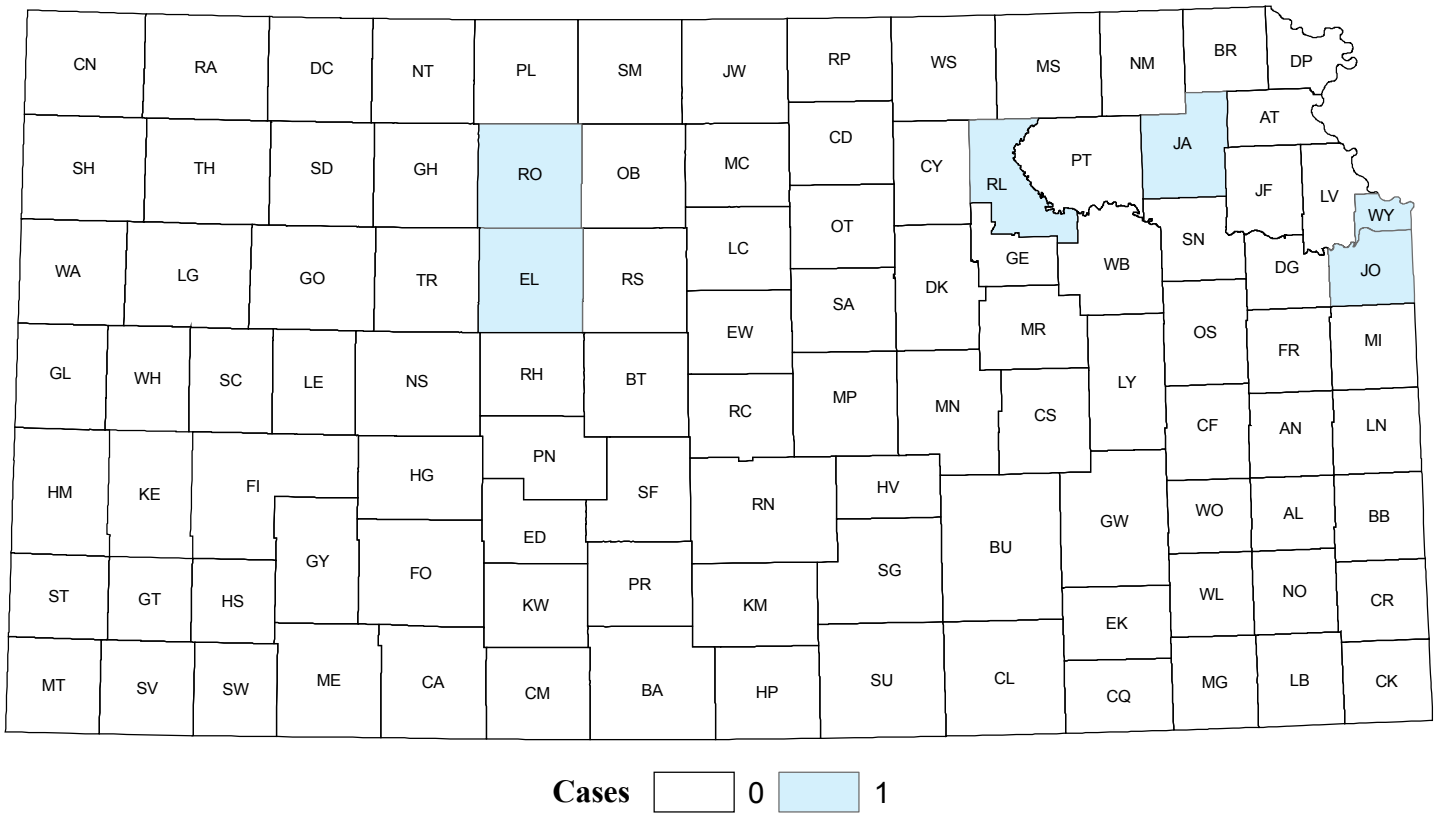
Epidemiology and Trends

2004 Kansas Count: 5

	Rate per 100,000	*95% CI*
Kansas Rate	0.2	(0.0 – 0.3)
U.S. Rate (2003)	0.8	*NA*

In 2004, five cases of Legionellosis were reported in Kansas. All five cases were females and most were from rural counties. The median age was 71 years (range 37-86 years). Three cases were hospitalized, but no deaths were reported. The cases were sporadic and did not appear to be related. Since 1994 there have been a total of 46 cases of legionellosis reported in Kansas with 0-10 cases being reported annually.

Legionellosis Cases by County, 2004



LYME DISEASE

Clinical Features: A systemic, tick-borne disease, almost never fatal, with manifestations affecting skin, nervous system, heart and/or joints. In early stages, 60%-80% of patients present with a characteristic "bull's-eye" rash, erythema migrans (EM), accompanied by nonspecific symptoms such as fever, malaise, fatigue, headache, myalgia, and arthralgia. If untreated, some patients may develop arthritis; neurologic abnormalities, such as aseptic meningitis, facial palsy, nerve inflammation and encephalitis; and cardiac problems.

Causative Agent: *Borrelia burgdorferi*, a spirochete bacterium

Mode of Transmission: Maintained in the blood and tissues of small rodents and deer, the organism is transmitted by blood to feeding ticks, specifically the *Ixode*s species including the deer tick (*I. scapularis*) and the western black-legged tick (*I. pacificus*). During its feeding process, the infected tick will transmit the organism to humans and other mammals. Transmission occurs after $\geq$24 hours of tick attachment.

Incubation Period: After tick exposure, 3-32 days, with mean of 7-10 days.

Period of Communicability: No evidence of person-to-person transmission.

Public Health Significance: A vaccine against Lyme disease was available in 2001, but has since been withdrawn by the manufacturer. The role of the health department is limited to providing education on the mode of tick transmission and means of personal protection.

Reportable Disease in Kansas Since: 1990

Clinical Criteria

- Erythema migrans diagnosed by a physician and defined by a single primary lesion $\geq$5 cm in size and/or the occurrence of secondary lesions, ***OR***
- At least one late manifestation, as defined below, with laboratory confirmation of *B. burgdorferi* infection and without an alternate explanation found.

    - *Musculoskeletal system*. Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.

- *Nervous system*. Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *B. burgdorferi* in the CSF, evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone is not criteria for neurologic involvement.

- *Cardiovascular system*. Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

Laboratory Criteria for Surveillance Purposes

- Isolation of *B. burgdorferi* from a clinical specimen, ***OR***
- Demonstration of diagnostic IgM or IgG antibodies to *B. burgdorferi* in serum or cerebrospinal fluid (CSF). A two-test approach using a sensitive enzyme immunoassay or immunofluorescence antibody followed by Western blot is recommended.

Surveillance Case Definitions

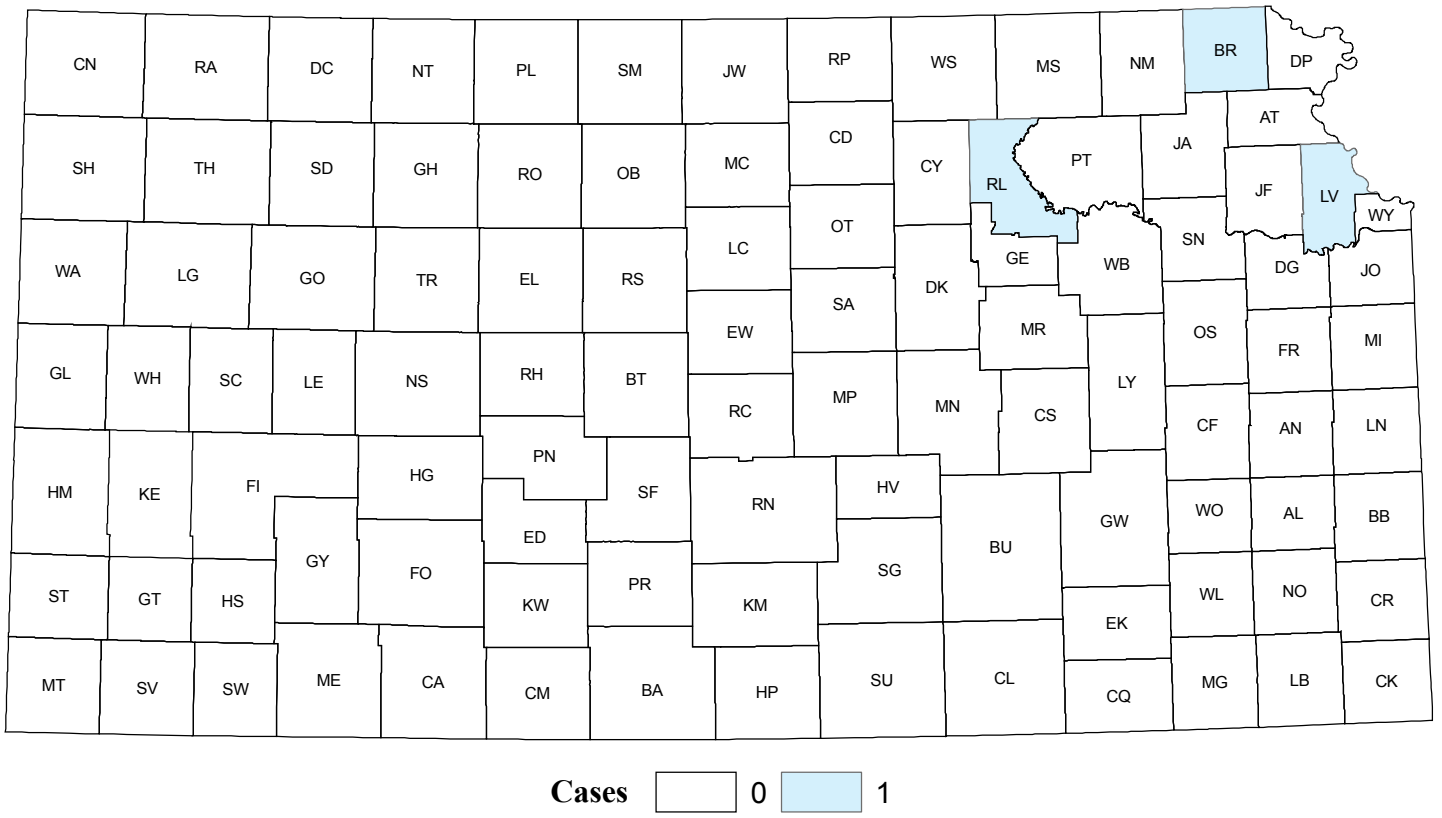
- *Confirmed:*
  - A case with erythema migrans, ***OR***
  - A case with at least one late manifestation (as defined above) that is laboratory confirmed.

2004 Kansas Count: 3

	Rate per 100,000	*95% CI*
Kansas Rate	0.1	(0.0 – 0.2)
U.S. Rate (2003)	7.4	*NA*

Three confirmed cases of lyme disease were reported in Kansas during 2004. All were diagnosed with erythema migrans, the characteristic "bulls-eye" rash. Persons who do not develop erythema migrans often do not meet the strict definition for a confirmed case.

Lyme Disease Cases by County, 2004



MALARIA

Clinical Features: The symptoms of malaria include high fever, chills, rigor, and headache, which may be recurrent and suddenly. If untreated fever and other symptom may occur in a cyclical pattern every second or third day. Other commonly associated symptoms include back pain, sweats, myalgia, nausea, vomiting, diarrhea, and cough. Untreated *Plasmodium falciparum* infection can lead to coma, renal failure, pulmonary edema, and death. The diagnosis of malaria should be considered for any person who has these symptoms and who has traveled to an area in which malaria is endemic. Asymptomatic parasitemia can occur among persons who have been long-term residents of areas in which malaria is endemic.

Causative Agent: *Plasmodium vivax, P. ovale, P. malaria,* or *P. falciparum*

Mode of Transmission: By the bite of an infective female *Anopheles spp.* mosquito. Most species feed at dusk and during early night hours; some important vectors have biting peaks around midnight or early hours of morning. Malaria may also be transmitted by injection or transfusion of blood of infected persons or by use of contaminated needles or syringes, as by drug users. Humans are the only important reservoir of human malaria.

Incubation Period: The time between the infective bite and the appearance of clinical symptoms is approximately 9 to 14 days for *P. falciparum*, 12 to 18 days for *P. vivax* and *P. ovale,* and 18 to 40 days for *P. malariae*.

Period of Communicability: *Plasmodium* may be passed on to biting mosquitoes as long as infective gametocytes are present in human blood; this varies from one to five years depending on the parasite species and response to treatment. The mosquito remains infective for life. Transmission by transfusion may occur as long as asexual forms remain in the circulating blood, up to 40 years. Stored blood can remain infective for at least one month.

Public Health Significance: Even though malaria is not endemic to the United States or Kansas, it remains a public health threat for several reasons: (1) most persons have no protective immunity and can develop a rapid severe disease, (2) malaria cases can transmit the parasites to local mosquitoes, which in turn can pass it onto local residents.

Cases of malaria in Kansas have been reported in individuals with history of foreign travel. However, cases of malaria in travelers are preventable. Persons traveling to areas at high risk for malaria can protect themselves by taking effective antimalarial drugs and following measures to prevent mosquito bites.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Demonstration of malaria parasites in blood films

Surveillance Case Definitions

- *Confirmed:* an episode of microscopically confirmed malaria parasitemia in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country.

Comment

- A subsequent attack caused by a different *Plasmodium spp*. is counted as an incident case. In the United States, a subsequent attack caused by the same species may indicate a relapsing infection or treatment failure caused by drug resistance.

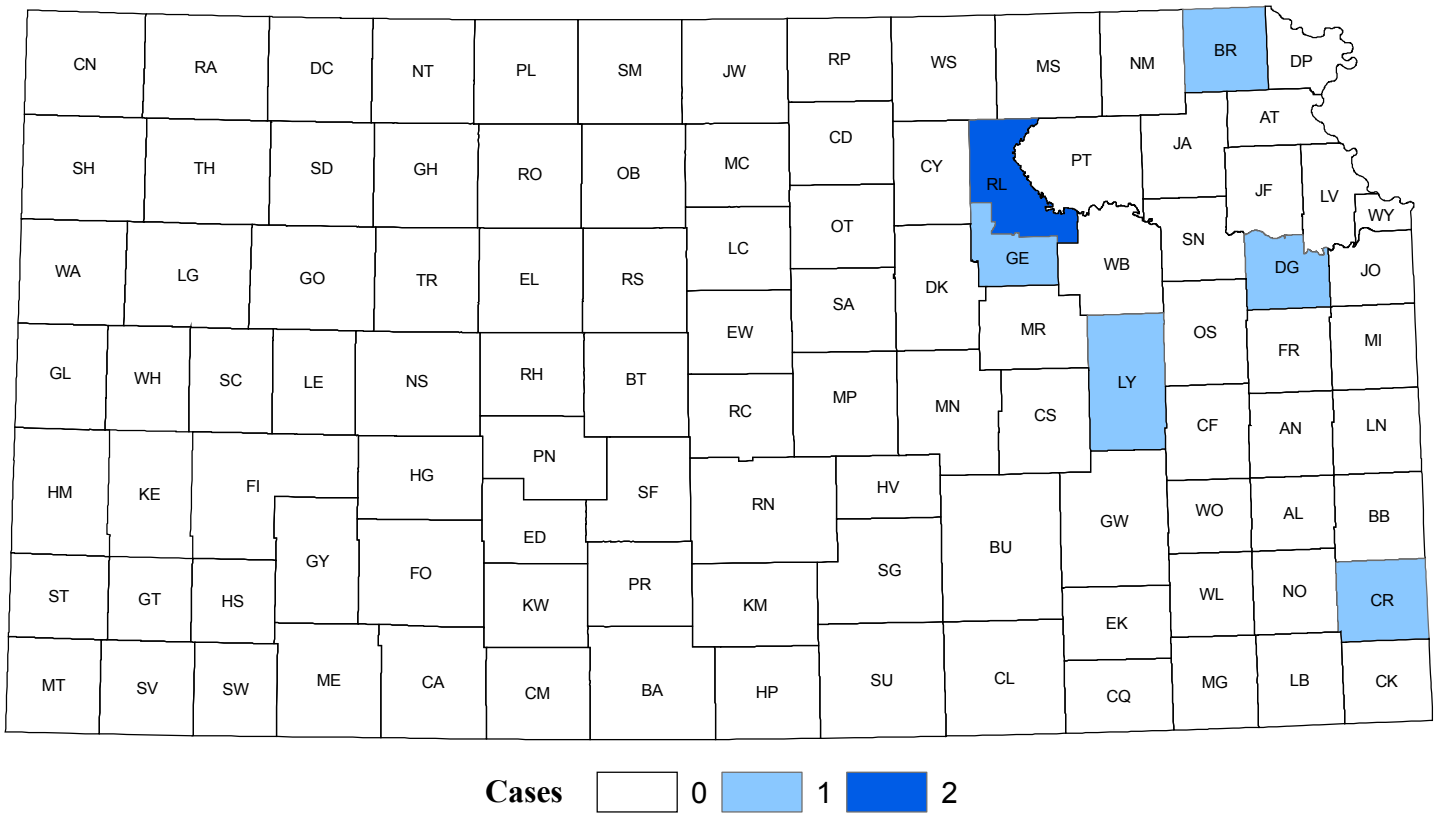
Epidemiology and Trends

2004 Kansas Count: 8

	Rate per 100,000	*95% CI*
Kansas Rate	0.3	(0.1 - 0.5)
U.S. Rate (2003)	0.5	*NA*

In 2004, there were nine cases of malaria reported in Kansas. The cases ranged in age from 16 to 67 years with a median of 29 years. Two of the nine cases were foreign-born natives of Africa and India. Six of the cases had recent foreign travel history to malaria endemic countries. These cases had been to the following countries: Kenya (2), Nigeria (1), Niger (1) India (1), Uganda (1), and West Africa; individuals may have traveled to more than one country. The species of malaria causing infection was available for five of the nine cases - two cases were infected with *P. falciparum*, two were infected with *P. vivax*, and one case was infected with *P. ovale.*

Malaria Cases by County, 2004



MENINGITIS, OTHER BACTERIAL
(non-meningococcal and non-*Haemophilus influenzae* type B)

Clinical Features: May include fever, headache, stiff neck, vomiting, and rash.

Causative Agent: For the purposes of this document, "other" bacterial meningitis is defined as an infection of the meninges caused by bacteria other than *Neisseria meningitidis* or *Haemophilus influenzae* type B.

Mode of Transmission: Direct person-to-person contact, including respiratory droplets from the nose or throat of infected individuals.

Incubation Period: ranges from 2 to 10 days

Period of Communicability: Untreated patients are most infectious for 2-3 weeks after the illness onset, although transmission may occur until the bacteria are no longer found in respiratory secretions.

Public Health Significance: Meningitis caused by *Streptococcus pneumoniae* may be prevented through vaccination. Contacts of non-meningococcal and non-HiB meningitis normally do not require post-exposure prophylaxis.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Isolation and identification of a bacterial pathogen from CSF or blood.

Surveillance Case Definitions

Confirmed: A clinically compatible case that is laboratory confirmed.

Epidemiology and Trends

2004 Kansas Count: 8

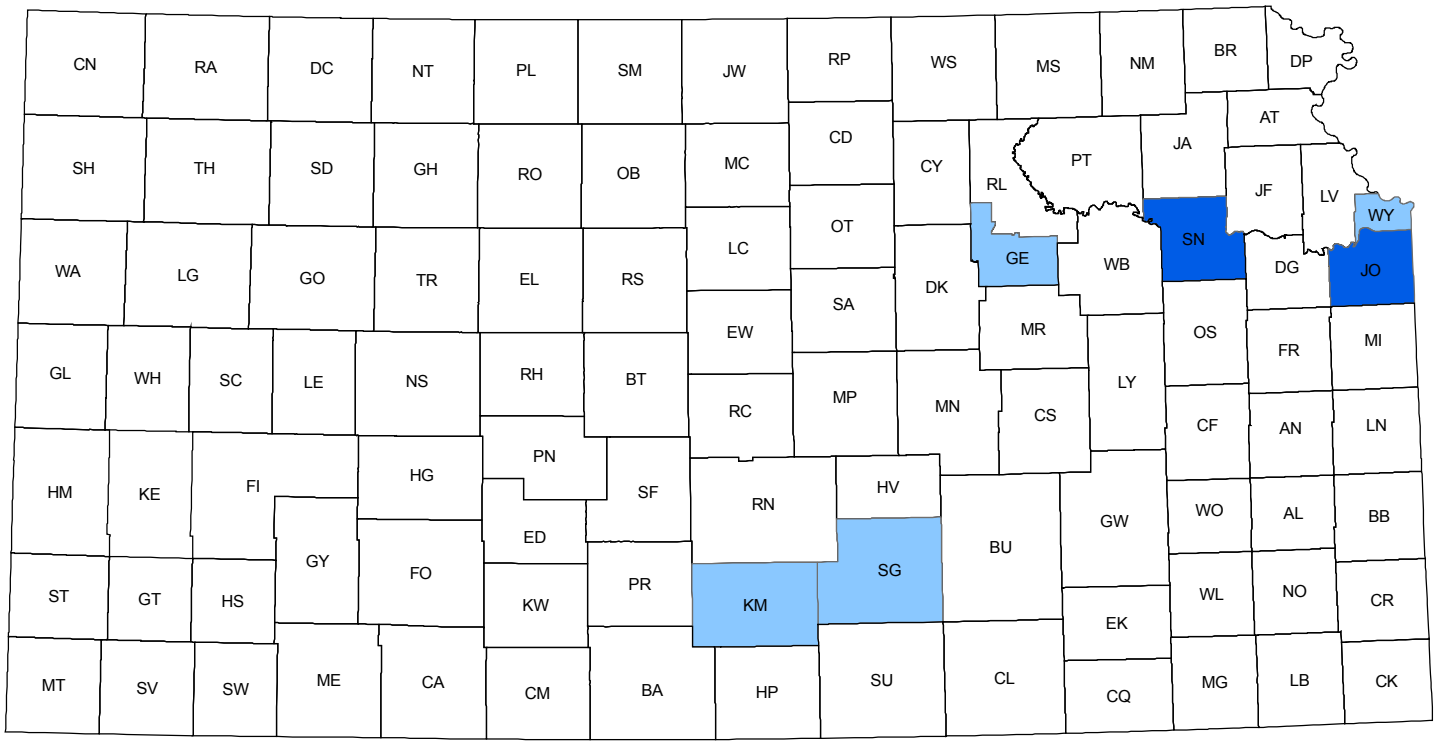
	Rate per 100,000	*95% CI*
Kansas Rate	0.3	(0.1 - 0.5)
U.S. Rate (2003)	*NA*	*NA*

In 2004, there were eight cases of non-meningococcal, non-*Haemophilus influenza*e type B bacterial meningitis. Group A *Streptococcus*, Group B *Streptococcus*, Group D *Streptococcus* (currently known as *Enterococcus*), *Staphylococcus*, and *Salmonella* infection caused the diseases. Five were speciated or serotyped—*Streptococcus pneumoniae*, *Streptococcus agalactiae*, *Streptococcus enterococcus* (based on old nomenclature), and *Salmonella* adelaide.

The cases ranged from less than 1 year through 72 years old. 88% (n=7) were male, and 63% (n=5) were under 4 years old.

The case of *Salmonella* meningitis was reported in a two-week-old infant in Sedgwick County. The infection was not related to an outbreak, and no other person in the family was diagnosed with *Salmonella*. The family had a pet lizard, but the lizard was not tested.

Other Bacterial Meningitis Cases by County, 2004



MENINGOCOCCAL DISEASE

Clinical Features: The disease manifests most commonly as meningitis and/or meningococcemia that may progress rapidly to purpura fulminant, shock, and death. The disease is characterized by sudden onset with fever, intense headache, nausea (often with vomiting), and stiff neck. Up to 15% of populations may carry *N. meningitidis* in the nasopharynx without developing invasive disease, while a few develop bacteremia, sepsis, meningitis, or pneumonia. Even with early diagnosis and appropriate treatment, the fatality rate of meningococcal meningitis is 5-15%.

Causative Agent: Meningococcal disease is an acute bacterial disease caused by *Neisseria meningitidis*, a gram- negative diplococcus bacterium. The most common serogroups of *N. meningitidis* in the United States are B, C, W-135, and Y.

Mode of Transmission: Transmission of *N. meningitidis* is from person to person by direct contact with respiratory droplets from the nose and throat of infected individuals. Late winter to early spring is the peak season for infection, but infections can occur at any time of the year. Humans are the reservoir.

Incubation Period: The incubation period ranges from two to 10 days, usually three to four days

Period of Communicability: Individuals are communicable until meningococci are no longer present in the discharges from the nose and mouth. Meningococci usually disappear from the nasopharynx within 24 hours after the institution of appropriate therapy. Penicillin will temporarily suppress the organisms but will not eradicate them.

Public Health Significance: Vaccination and post-exposure prophylaxis are effective in preventing meningococcemia. The quadrivalent A, C, Y, W-135 vaccine (Menomune®, manufactured by Aventis Pasteur) is currently available in the United States and has proven to be 75-90% effective among people over two years of age. The vaccine should be made available to those (especially college students who live in dormitories) who wish to reduce their risk of meningococcal disease. There is no vaccine for serogroup B, historically responsible for 20-30% of reported cases in Kansas. Chemoprophylaxis is used for close contacts of cases (e.g., household members, intimate contacts, health care personnel performing mouth-to-mouth resuscitation, day care center playmates). No chemoprophylaxis is recommended for less intimate contacts (e.g., school mates, health care workers with minimal contact, and etc.) except during an outbreak or in a child care center.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Isolation of *Neisseria meningitidis* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, joint, pleural, or pericardial fluid). (Note: a positive antigen test is not sufficient to confirm a case for surveillance purposes. Positive antigen test results from urine or serum samples are unreliable for diagnosing meningococcal disease.)

Surveillance Case Definitions

- *Confirmed:* a clinically compatible case that is laboratory confirmed.

- *Probable*: a case with a positive antigen test in CSF or clinical purpura fulminant in the absence of a positive blood culture.

Epidemiology and Trends

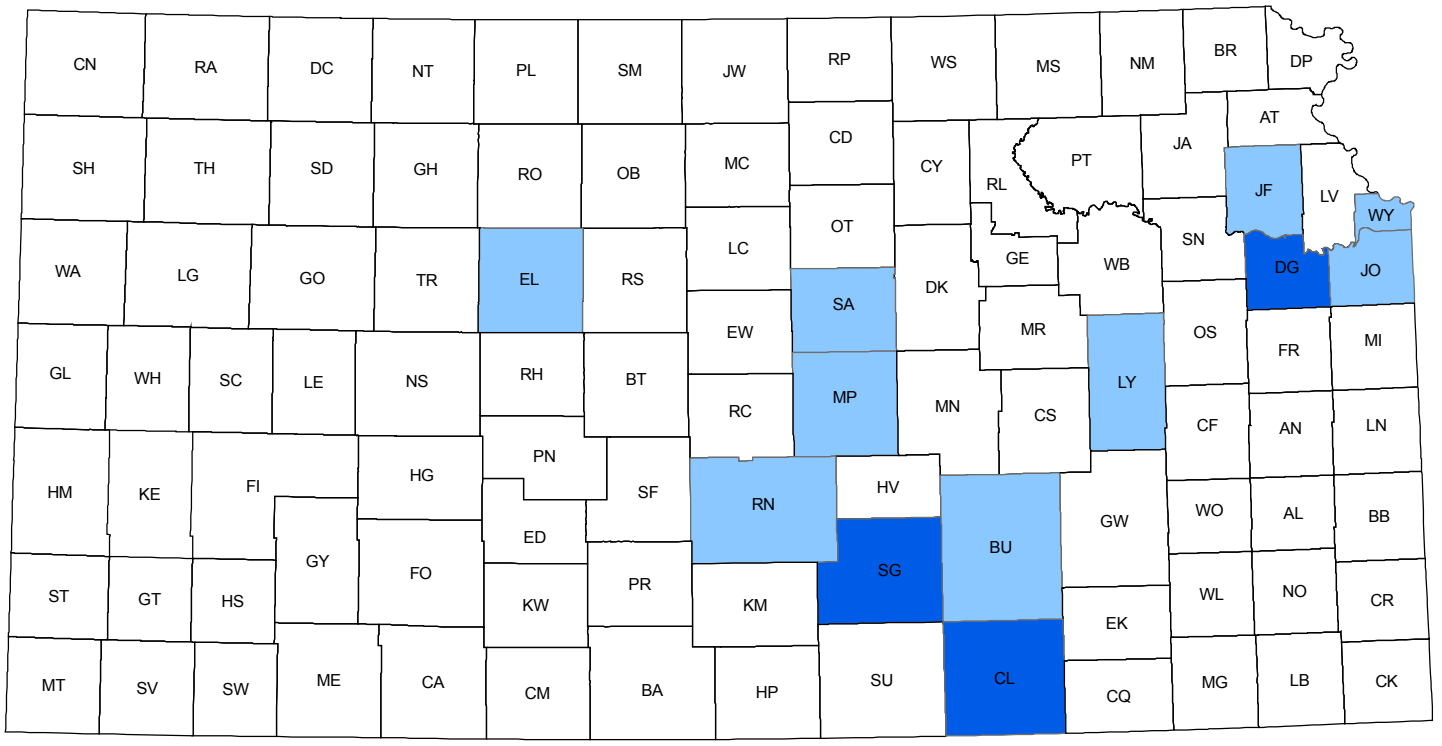
2004 Kansas Count: 14

	Rate per 100,000	*95% CI*
Kansas Rate	0.5	(0.2 - 0.8)
U.S. Rate (2003)	0.6	*NA*

The number of cases of meningococcal disease for 2004 (n=14) was one case less than the number of cases (n=15) reported in 2003. The three-year median for 2001-2003 was 15 cases. No outbreaks were detected in 2004. Cases ranged in age from less than 1 year to over 95 years of age. There were 7 cases of meningitis and 7 cases of meningiococcemia. Although rates of meningococcal disease are usually highest among children aged less than 1 year, 50% of the 2004 Kansas cases were among persons aged ≧18 years of age. The median age was 21 years. The majority of the cases were reported from urban areas (57%). Serotyping results were available for 11 specimens (79%). Four blood isolates and four cerebrospinal fluid isolates were serotyped—four were group B, one group C, and three group Y.

The Healthy People 2010 goal for meningococcal disease is to reduce morbidity to 8.6 cases per 100,000 children aged 1-23 months. There were four cases of meningococcal disease reported in Kansas among children aged 0-4 years in 2004, and the rate remained constant at 2.1 per 100,000 population in both 2003 and 2004.

Meningococcal Disease Cases by County, 2004



MUMPS

Clinical Features: Characterized by fever, swelling, and tenderness of one or more of the salivary glands: the parotid, the sublingual, and the submaxillary glands. Orchitis may occur in males and oophoritis in females.

Causative Agent: The mumps virus, a type of paramyxovirus.

Mode of Transmission: Direct contact with the saliva of an infected person, droplet spread, and airborne transmission.

Incubation Period: May range from 12-25 days (average 15-18 days).

Period of Communicability: Virus has been isolated from saliva a week before overt parotitis and 9 days after symptom onset. Cases are most infectious from two days prior to four days after symptom onset.

Public Health Significance: Mumps is a vaccine-preventable disease; vaccine is available either as a single vaccine or in combination with rubella and measles (MMR). Exclusions may apply to infected individuals enrolled in daycare or school.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Isolation of mumps virus from clinical specimen, ***OR***
- Significant rise between acute- and convalescent-phase titers in serum mumps immunoglobulin G antibody level by any standard serologic assay, ***OR***
- Positive serologic test for mumps immunoglobulin M (IgM) antibody.

Surveillance Case Definitions

- *Confirmed:* A case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory confirmed case does not need to meet the clinical case definition.

- *Probable:* A case that meets the clinical case definition, has noncontributory or no serologic or virologic testing, and is not epidemiologically linked to a confirmed or probable case.

Epidemiology and Trends

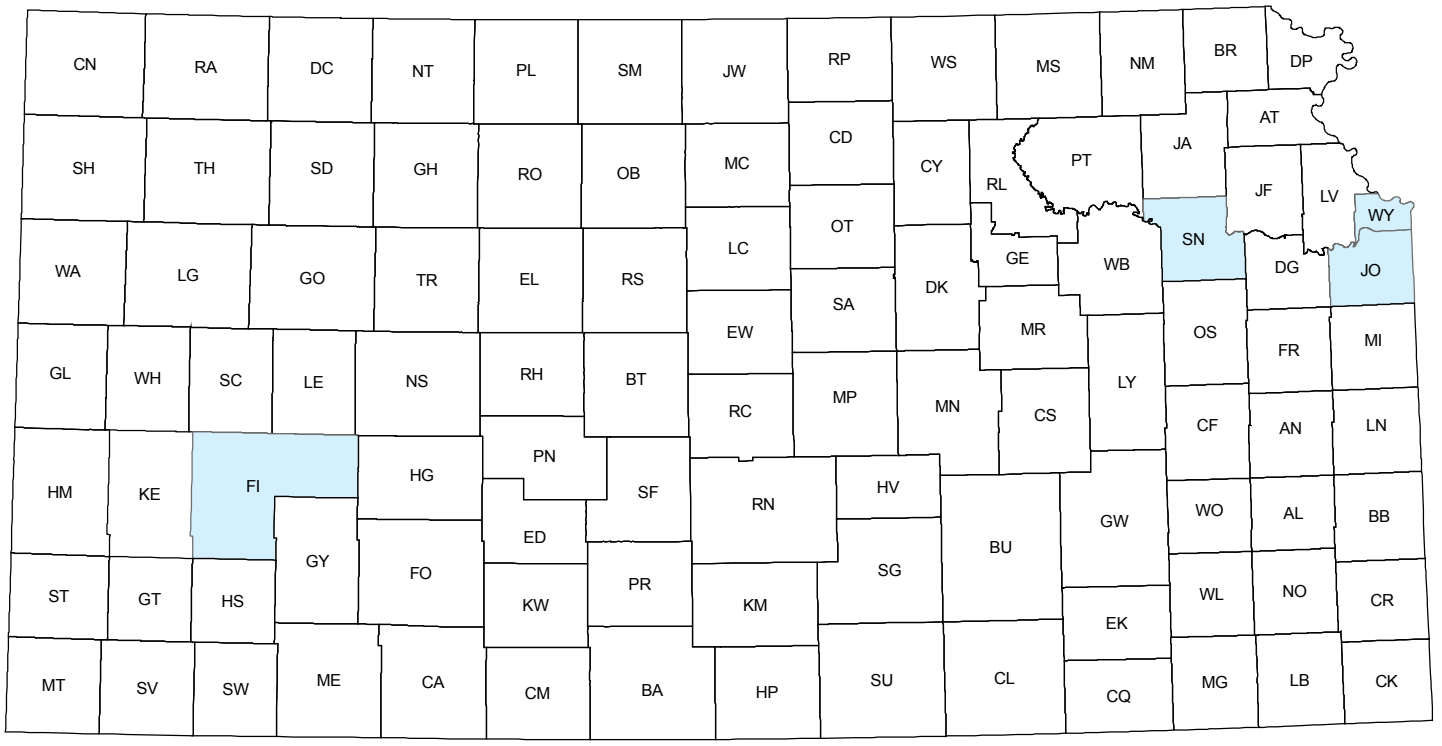
2004 Kansas Count: 4

	Rate per 100,000	*95% CI*
Kansas Rate	0.1	(0.0 – 0.3)
U.S. Rate (2003)	0.1	*NA*

In 2004, 4 cases of mumps were reported in Kansas. The majority of cases were females; half were African American. Ages of cases ranged from 3 years to 52 years of age (median, 24 years). There were no reported or hospitalizations or deaths among cases. The cases were sporadic and appeared to be unrelated. Since 1994, 17 mumps cases have been reported in Kansas with 0-3 cases reported annually.

The national mumps immunization goal for the year 2010 is to achieve a 90% coverage rate among 2-year-old children for the complete series of measles, mumps, and rubella vaccinations (MMR). The estimated first dose MMR coverage for children aged 19 to 35 months was 92.3% (± 4.3%) for Kansas and 93.0% (± 0.6%) nationally.

Mumps Cases by County, 2004



PERTUSSIS (WHOOPING COUGH)

Clinical Features: A prolonged, paroxysmal cough with characteristic inspiratory "whoop" is the primary symptom; posttussive vomiting may also occur. Infants may present with apnea or cyanosis, while adults may present only with a chronic spasmodic cough.

Causative Agent: *Bordetella pertussis*, a bacillus bacterium.

Mode of Transmission: Contact with respiratory secretions of infected persons.

Incubation Period: Ranges from 5-21 days (average 5-10 days).

Period of Communicability: Most transmissible in the period before cough becomes paroxysmal. Communicability gradually decreases and becomes negligible after 3 weeks. Patients are considered infectious until 5 days after beginning treatment.

Public Health Significance: Pertussis affects all age groups, but the disease is most severe in infants and young children. A vaccine exists to prevent illness in this age group (i.e., children under seven years old).

Reportable Disease in Kansas Since: 1982

Clinical Criteria

- A cough illness lasting $2 weeks with one of the following: paroxysms of coughing, inspiratory "whoop", or posttussive vomiting, without other apparent cause.

Laboratory Criteria for Surveillance Purposes

- Isolation of *Bordetella pertussis* from clinical specimen, **OR**
- Positive polymerase chain reaction for *B. pertussis*.

Surveillance Case Definitions

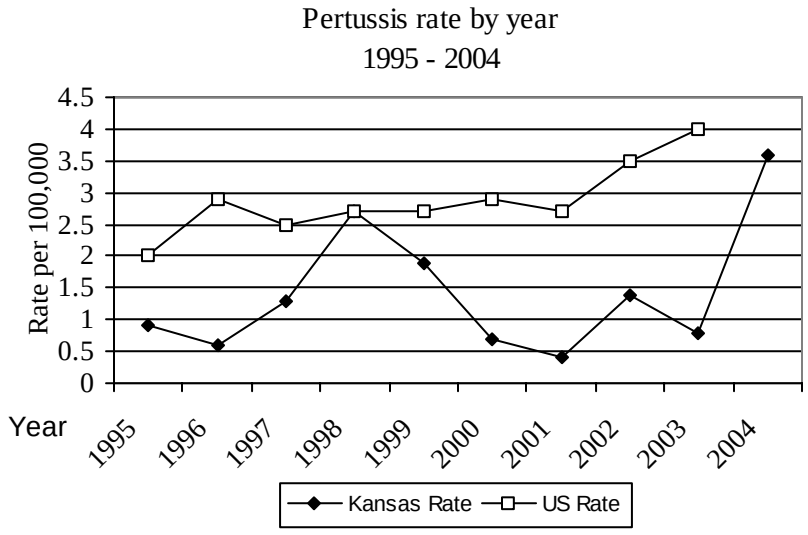
- *Confirmed:*
  - A case that is laboratory confirmed, **OR**
  - A case that meets the clinical case definition and is epidemiologically linked to a laboratory-confirmed case

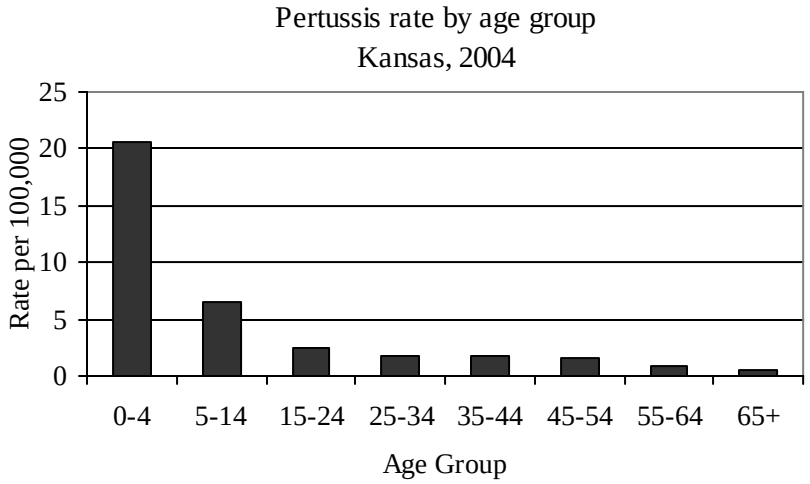
- *Probable:* A case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case.

Epidemiology and Trends

2004 Kansas Count: 98

	Rate per 100,000	*95% CI*
Kansas Rate	3.6	(2.9 – 4.3)
U.S. Rate (2003)	4.0	*NA*
Gender		
Male	2.9	(2.0 – 3.8)
Female	4.3	(3.2 – 5.4)
Race		
White	3.1	(2.4 – 3.7)
Black	1.1	(0 – 2.7)
Ethnicity		
Hispanic	4.7	(1.8 – 7.6)
Non-Hispanic	2.4	(1.8 – 3.0)
Geographic area		
Urban County	3.5	(2.6 – 4.5)
Non-Urban County	3.6	(2.6 – 4.7)



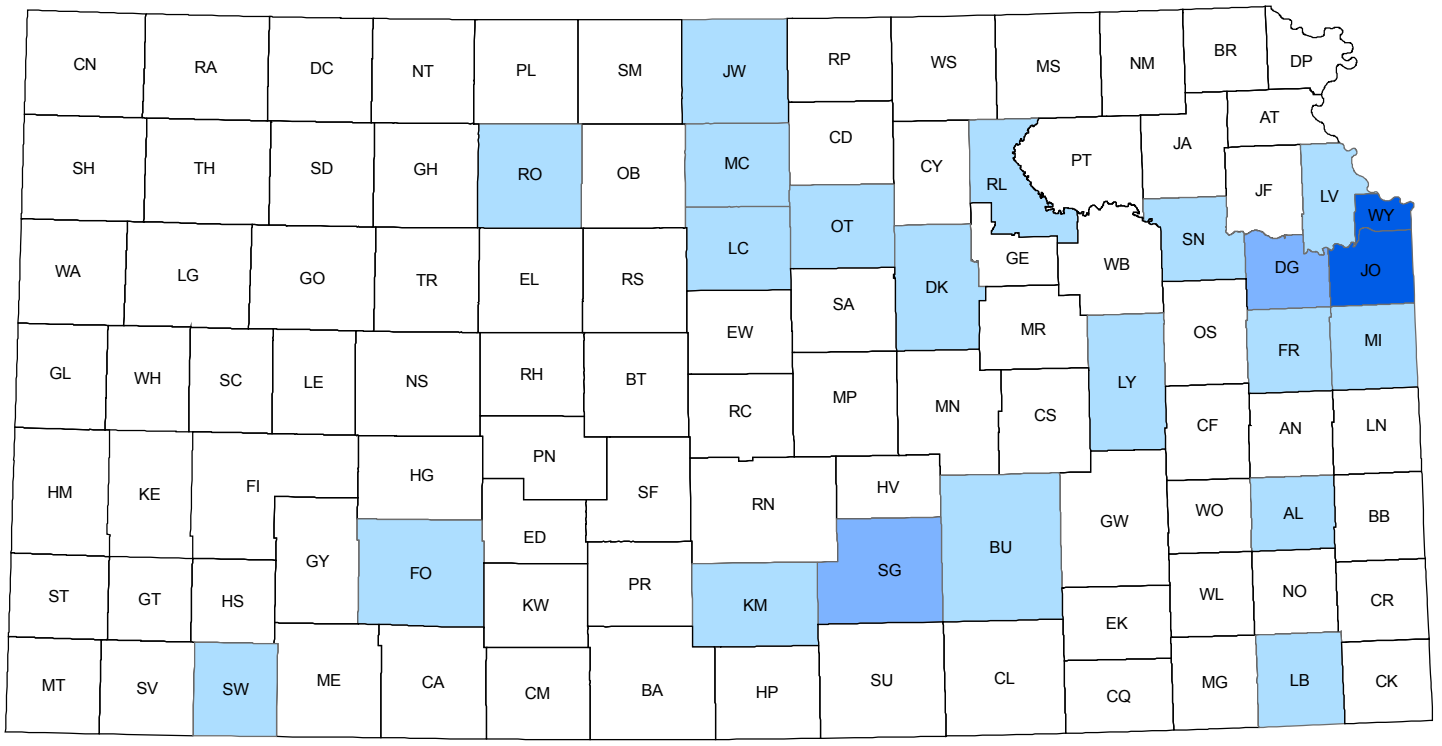


In 2004, 98 confirmed cases of pertussis were reported, a 76% increase from the 23 cases reported in 2003. The three-year median of cases for 2001-2003 was 53. Twenty-two percent of the cases occurred among individuals that were younger than six months of age. According to the childhood vaccination schedule, children in this age group have received less than three doses of pertussis vaccine, and are not yet fully protected from the disease. Vaccine efficacy among those that have received at least 3 doses is estimated to be 80%.

Several outbreaks of pertussis occurred throughout Kansas in 2004. The number of cases was highest during the fourth quarter of 2004. The average number of pertussis cases per month was 18 during the last quarter compared to an average of 3 cases per month for the remainder of the year.

The national pertussis immunization goal for the year 2010 is a 90% coverage rate among the two-year old children for the complete pertussis vaccination series (4 doses). According to the 2004 National Immunization Survey, Kansas' estimated coverage rate for the forth dose of the diphtheria, tetanus, and pertussis (DTaP) vaccine was 82.6%.

Pertussis Cases by County, 2004



RABIES, ANIMAL

Clinical Features: In animals, the disease has three phases. The first phase (prodromal) often presents as gastrointestinal symptoms (diarrhea, vomiting, etc.), progressing to furious then dumb (paralytic) rabies. During furious rabies, animals may become very aggressive and may roam, biting humans and other animals. In dumb rabies, paralysis is the predominant manifestation of the disease. This often begins with paralysis of the jaw accompanied by excessive salivation because of an inability to swallow. Owners may think the animal has a foreign body stuck in its throat and expose themselves while attempting to remove the "foreign object".

Causative Agent: Lyssavirus

Mode of Transmission: Wild mammals are the most important source of infection for both humans and animals in the United States. Skunks are the main reservoir for rabies in Kansas. Transmission may occur through bites and non-bite exposures. Bite exposures are most common - if the skin is broken during the bite, virus particles may reach a nerve and cause infection. A non-bite exposure occurs if an open wound, scratch, abrasion, or mucous membrane is contaminated with saliva, brain material, or cerebrospinal fluid from a rabid animal; a scratch from a rabid animal is also considered a non-bite exposure.

Incubation Period: The incubation period in animals varies by species.

Period of Communicability: In dogs, cats, and ferrets, rabies is communicable 3-7 days before the onset of clinical signs and throughout the illness until death. The period of communicability in other species is unknown.

Public Health Significance: A dog, cat, or ferret inflicting a bite may be observed daily for 10 days (if a human was exposed) or quarantined for 6 months (if another animal was exposed) following the exposure to rule out the risk of rabies transmission. If the animal develops signs of rabies or dies during the observation or quarantine period, or if the animal is considered wildlife or an exotic species, it must be humanely euthanized and tested for rabies. As rabies is fatal, those who have been bitten by a rabid animal should receive PEP as soon as possible - PEP consists of one dose of Human Rabies Immune Globulin (HRIG) and doses of rabies vaccine on days 0, 3, 7, 14, and 28.

Reportable Disease in Kansas Since: 1982

Laboratory Criteria for Surveillance Purposes

- Positive direct fluorescent antibody test (preferably performed on central nervous system tissue), ***OR***
- Isolation of rabies virus in cell culture or in a laboratory animal

Surveillance Case Definitions

- *Confirmed:* a case that is laboratory confirmed.

Epidemiology and Trends

2004 Kansas Count: 99

In Kansas, 99 laboratory confirmed cases of rabies in animals were reported during 2004, a decrease from the 165 cases reported in 2003. The three-year mean for 2002-2004 was 139 cases. Confirmed cases per year may not represent an actual change in rabies prevalence, but rather a change in the number of animal-to-animal or animal-to-human exposures. In Kansas, animals are not usually tested unless an exposure has occurred. In 2004, 8.1% of all animal submissions tested positive for rabies; the five-year median was 9.0%. The number of animals submitted for testing and the number of rabies-positive animals tend to follow the cyclical pattern of the skunk population in the state.

Skunks were the most common animals to test positive (Table 1). The state's predominant strain, the "south central skunk" strain, was found in nearly all of the terrestrial animals tested in Kansas in 2004. The “raccoon strain” seen on the East Coast of the U.S. has not been identified in Kansas.

Table 1 - Positive animal rabies species, Kansas, 2004

	Species	*Number Tested*	*Number Positive*	*Percent Positive*
Domestic	Cat	438	13	3.0
	Dog	290	2	0.7
Wildlife	Bat	167	4	2.4
	Fox	5	2	40.0
	Skunk	123	69	56.1
Livestock	Cow	58	7	12.1
	Horse	23	2	8.7

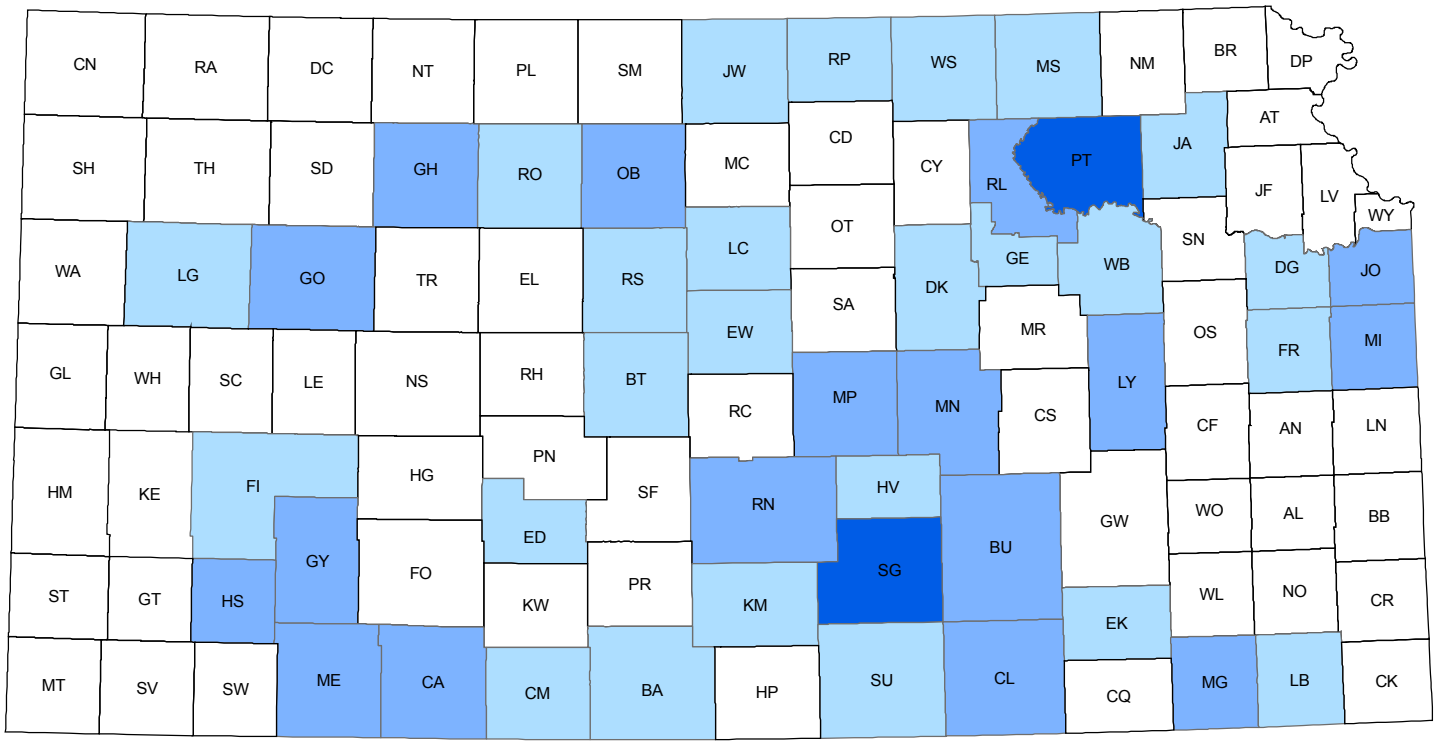
As in previous years, more cats tested positive than dogs. The state regulations on rabies, K.A.R. 28-1-2, do not mandate rabies vaccination for any domestic animal, though several local jurisdictions require vaccinations of some domestic animals, usually dogs.

There were no human rabies cases in Kansas in 2004; the last human rabies case in Kansas was reported in 1968. Bats have been associated with most of the human cases in the U.S. Four of the 167 submitted bats tested positive for rabies in Kansas in 2004.

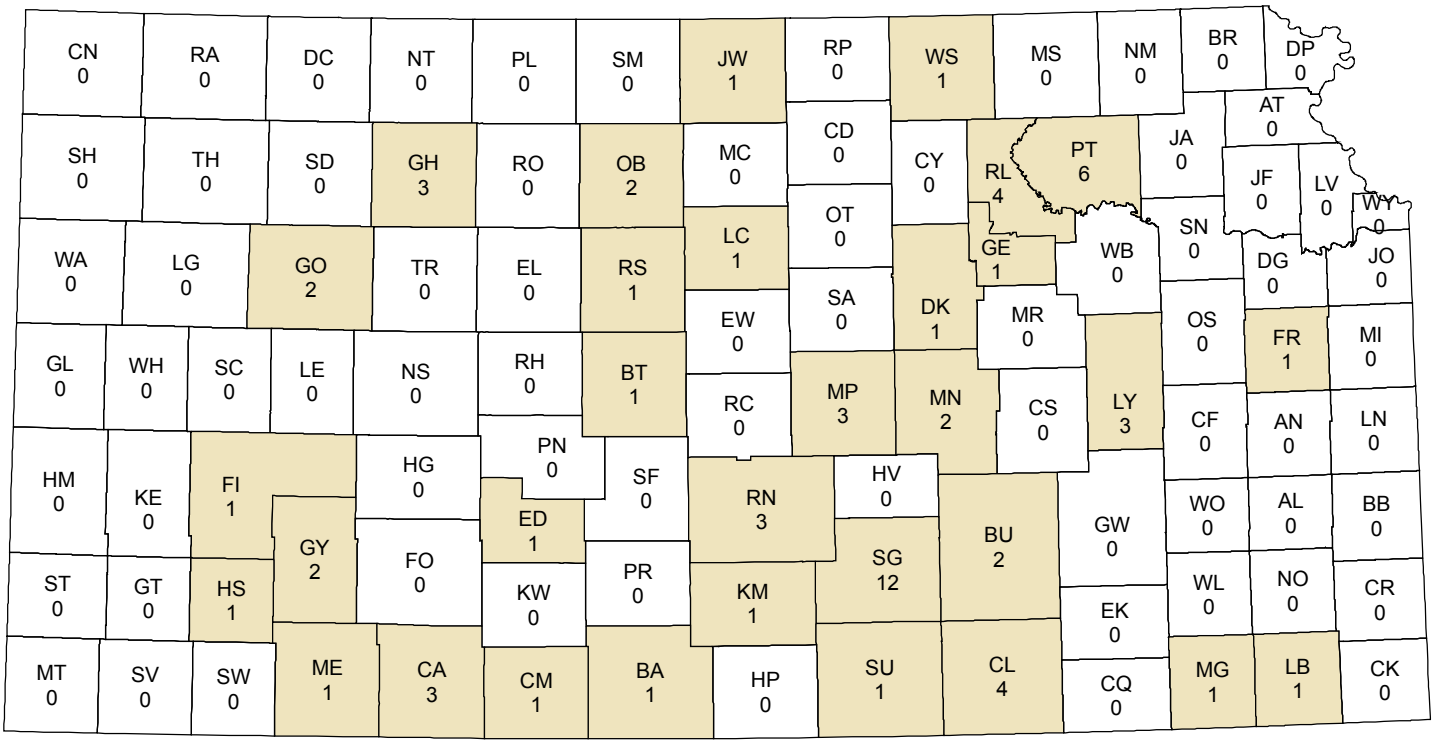
Rabies was tested for but not found in the following animals in Kansas during the past 15 years (1991-2004):

Antelope, Baboon, Badger, Beaver, Bison, Chipmunk, Coati, Cougar, Deer, Ferret, Ground Squirrel, Gerbil, Goat, Gopher, Groundhog, Guinea Pig, Hamster, Hedgehog, Human, Lion, Llama, Mink, Mole, Mouse, Muskrat, Pig, Porcine, Porcupine, Prairie Dog, Primate, Pronghorn, Rabbit, Rat, Ringtail, Squirrel, Tiger, Weasel, Wolf, Woodchuck

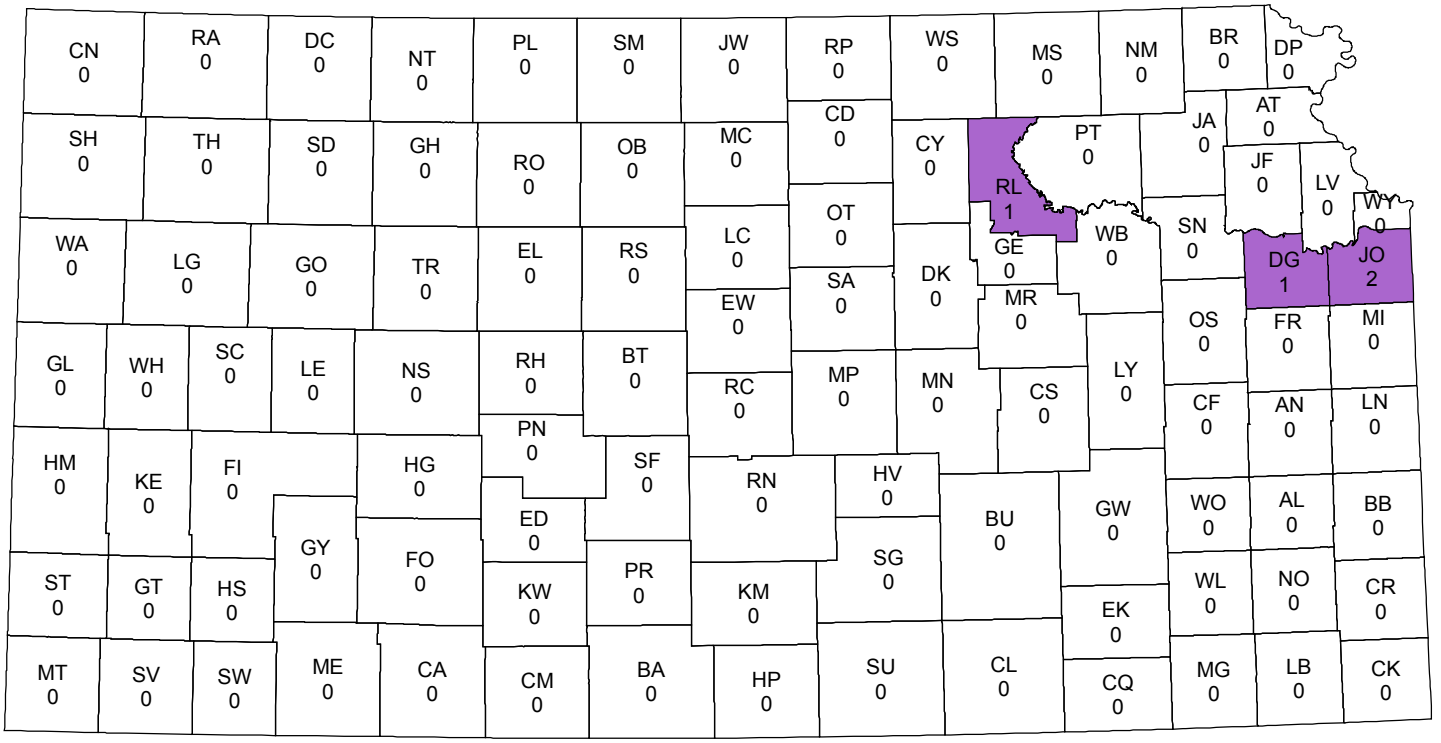
Animal Rabies Cases by County, 2004



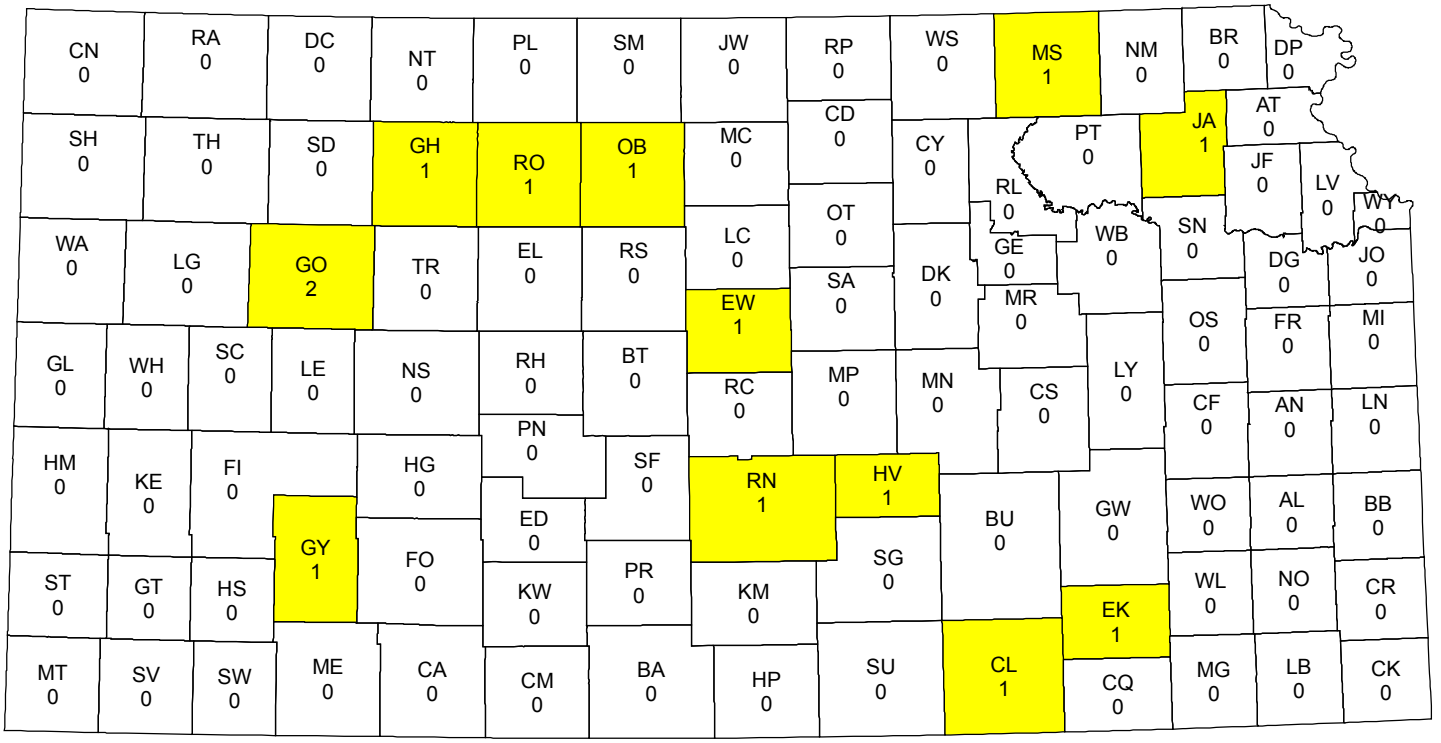
RABIES CASES: SKUNK, 2004



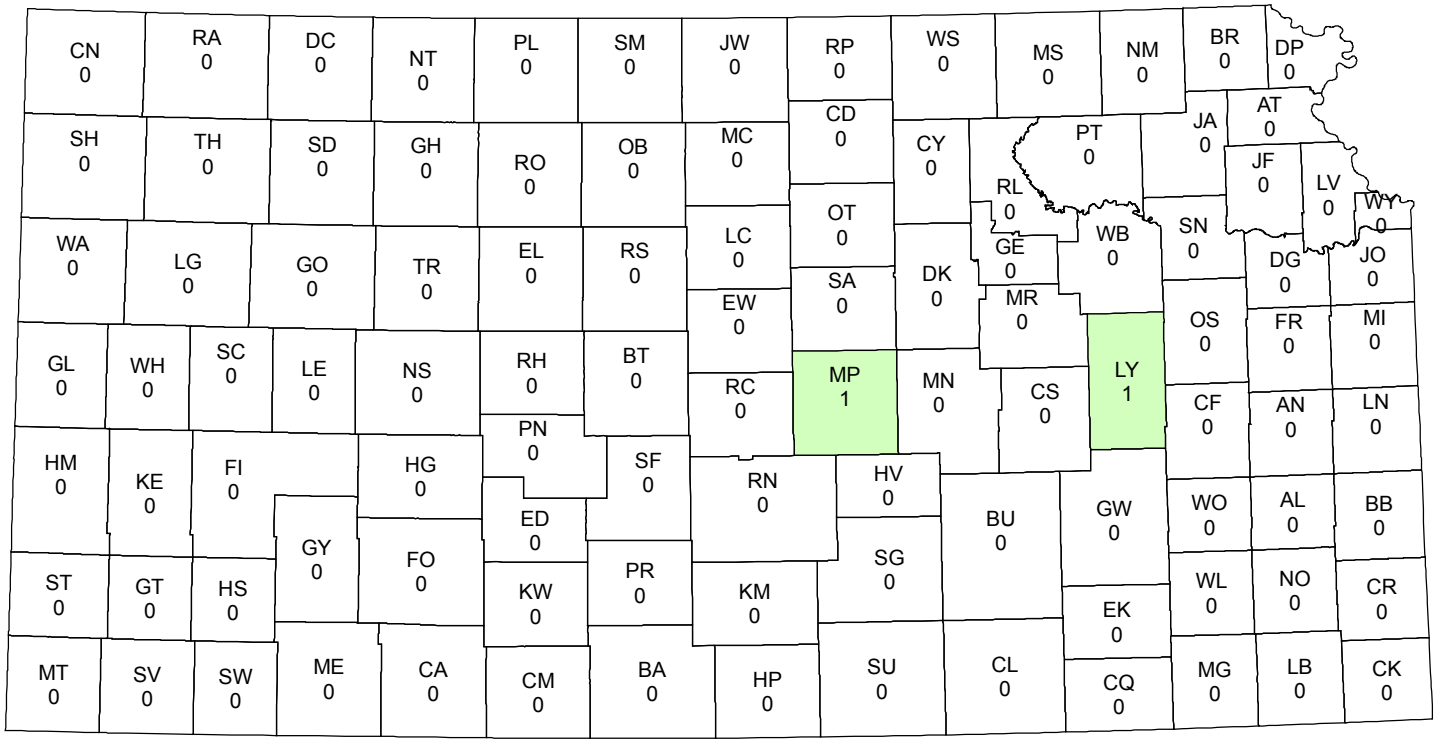
RABIES CASES: BAT, 2004



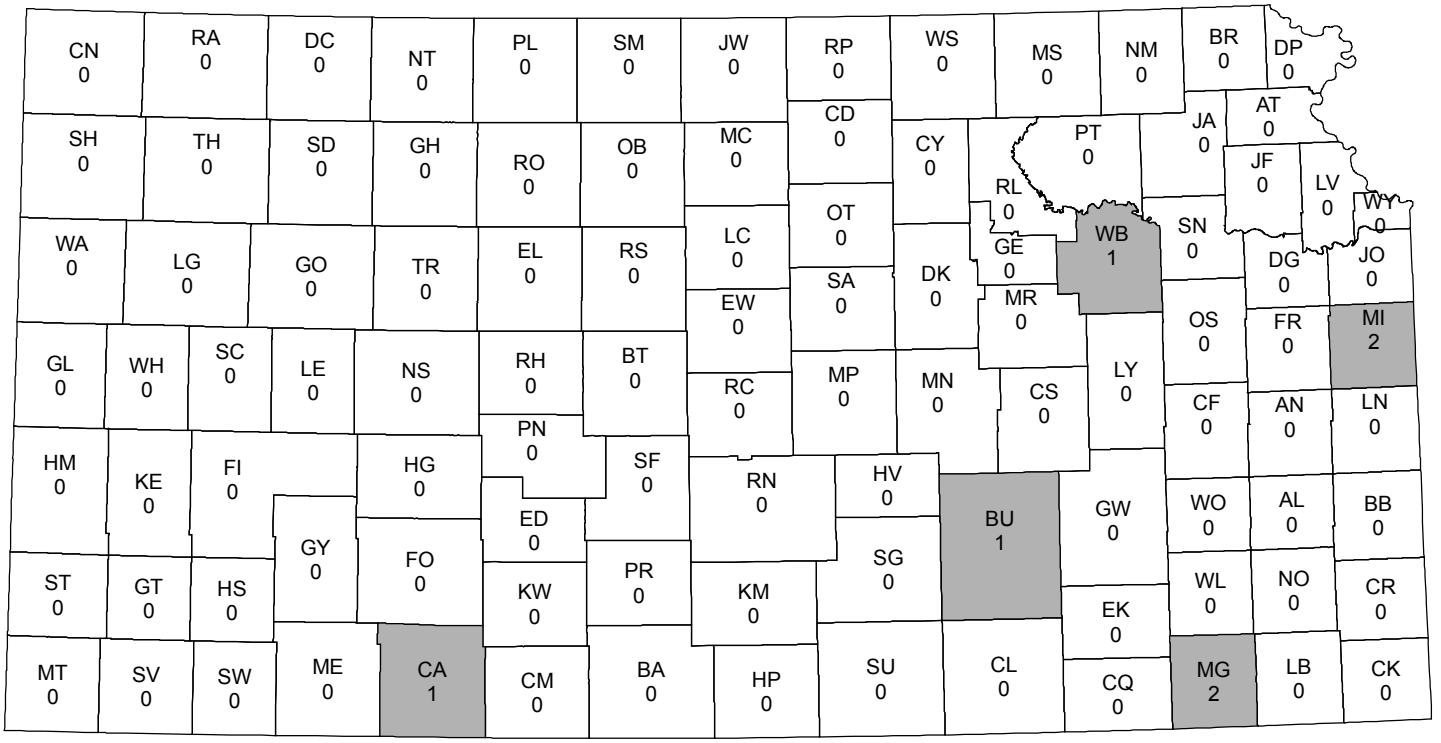
RABIES CASES: FELINE, 2004



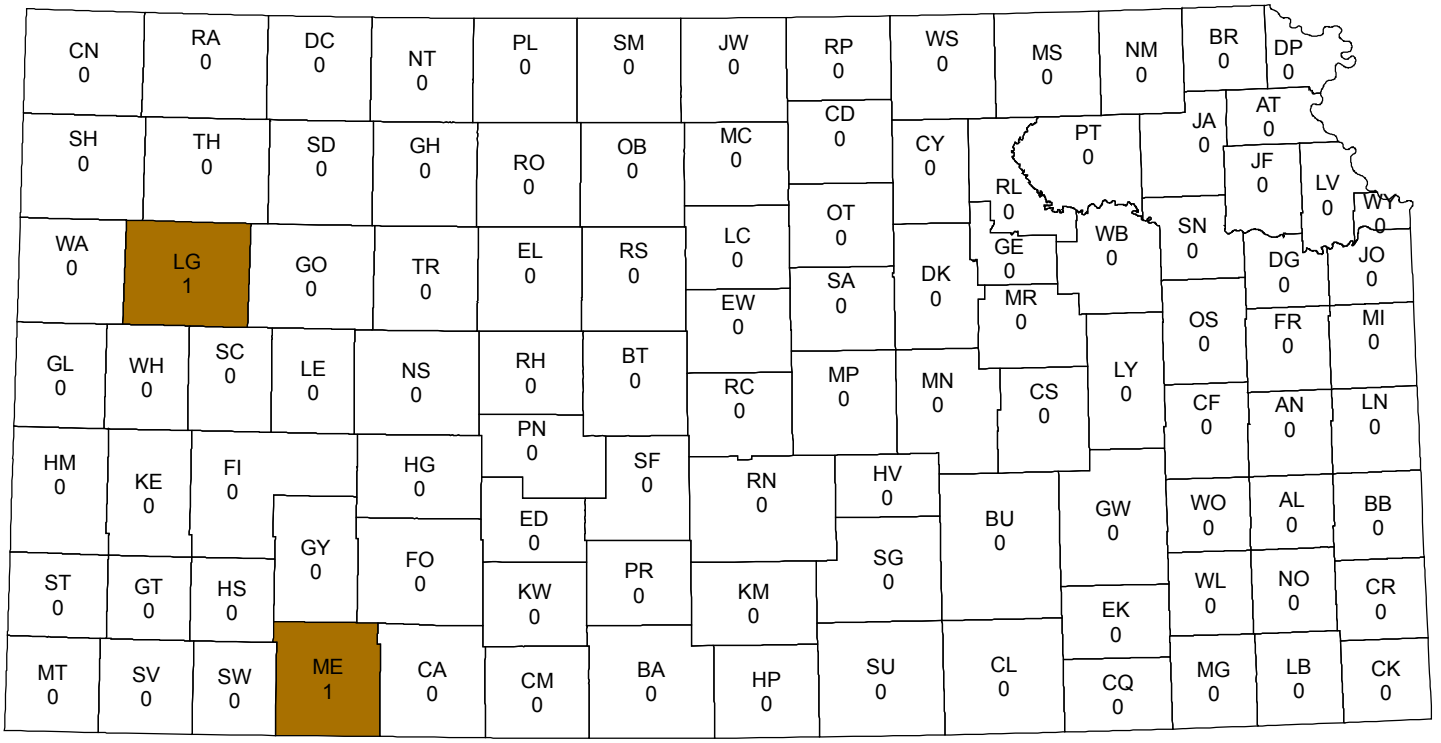
RABIES CASES: CANINE, 2004



RABIES CASES: BOVINE, 2004



RABIES CASES: EQUINE, 2004



RABIES CASES: FOX, 2004